The Softstrip tm System Reader by Cauzin is compatible with the
Apple II Series, the Apple Macintosh, and IBM PC computers and
compatibles. The Reader automatically scans Softstrip tm data
strips printed in magazines, books and newletter, and provides
the user with data or software entry without keying.

CAUZIN
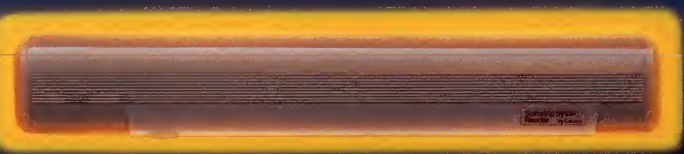
Creators of the Softstrip™ Technology

CAUZIN SYSTEMS, INC.
835 SOUTH MAIN STREET
WATERBURY, CT 06706
203-573-0150

At this moment you're holding five software programs in your hands. Programs that are about to change the way you look at software forever. Because all of them can be entered directly from the printed page without typing a single line of code.

Introducing the Softstrip™ system. An entirely new computer technology that will make it easier than ever before to generate, distribute, and access data as well as run programs published in magazines, books, and manuals, or internal business correspondence.

The system starts with a Softstrip™ data strip. A single strip can contain up to 5,500 bytes of encoded data; as many as eight strips can fit on a single page. The data can be text, graphics, listings or code.

MATH CONCENTRATION

This two-player game combines the excitement of the TV game-show with math drills. The result is an entertaining game that develops basic math skills and improves memorization.

The "Concentration"-style game is for two players or two teams. Once you make a match, you face a math drill designed for elementary-school children. To score, you must not only win at hi-res Concentration, but also solve a math problem.

After you read the program into the computer, run it. The object of the Concentration part of the game is to match a box from the left grid with a box in the right grid. To get complete credit, answer a simple math problem after a match is made. Exit early by pressing CONTROL-RESET.

MATH CONCENTRATION
by Steven Wong
appeared in
Nibble, December 1984
Vol. 5, No. 12

Read into: Apple II series

1 | 2 |
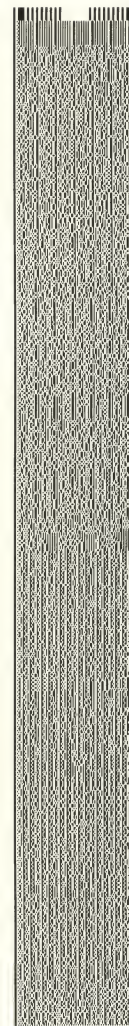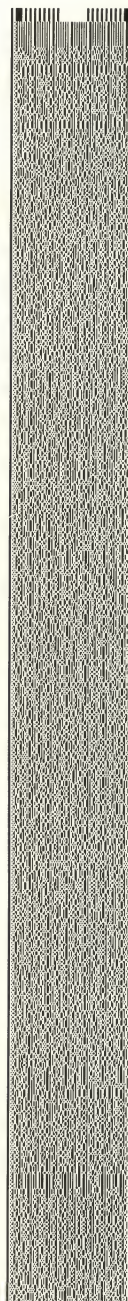
To read a data strip into a personal computer all you need is the Cauzin Reader. A low-cost, automatic scanner that plugs into your Apple II,® IBM® or Macintosh® personal computer.

The reader decodes and inputs data in a matter of seconds, using a unique optical scanning mechanism and a self-contained computer processor that converts the black and white image on paper to computer language. The reader is sensitive enough to assure complete accuracy whether a data strip has been wrinkled, scratched, or stained with coffee.

Now if we can put five programs in this pamphlet, imagine what magazines, newsletters, and software developers can do. They can give you the opportunity to sample a limitless number of programs almost instantly. Even make news articles or literature interactive by enhancing written information.

SHEEP STATION

In this simulation, you have to make a number of decisions to successfully manage a sheep ranch. The station starts with a value of $50,000. It's your job to increase its value by making wise decisions.

Each year, you make ten decisions regarding the station. Then you will be told such things as: number of sheep born, number of sheep that died, grain harvested per acre, and value of land and grain.

Read in the strip, and enter BASIC to run the program. The opening screen has valuable hints for winning the game. Type 666 for help or 999 to quit. You can also exit by pressing CONTROL-BREAK.

SHEEP STATION
by Philip Coates
appeared in
Tim Hartnell's
*Second Giant Book
of Computer Games*
Ballantine Books

Read into: IBM pc or compatible

1 │   2 │

Softstrip
COMPUTER READABLE PRINT
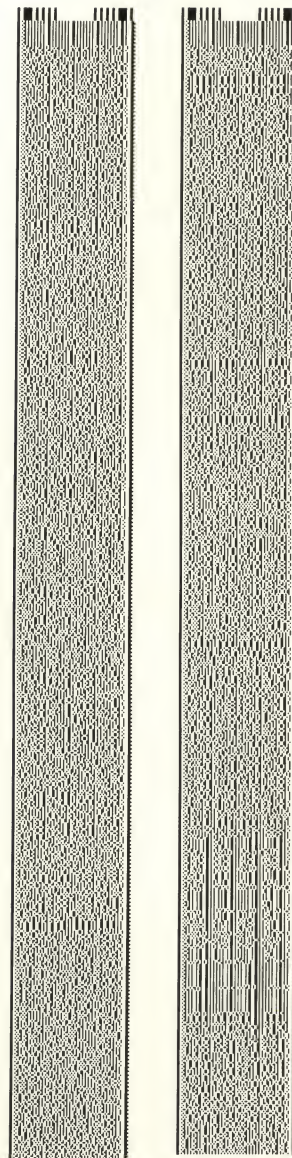
In your own company, you'll soon be able to use Softstrip™ data strips to distribute memos, issue price changes for the sales force, or send reports to field offices. To generate them, you'll simply need a laser printer and our software.

The Softstrip™ data strip to the right contains three programs from Nibble Magazine demonstrating text, sound and hi-res graphics.

DEMOSALE

This program is a working Lotus
1-2-3 template with sales forecasts
for a hypothetical company. Read
the strip into your computer and
then retrieve the file into a blank
worksheet. All the text, numbers
and equations are now on your
computer.

Read into: IBM pc or compatible

1| 2|

Softstrip
COMPUTER READABLE PRINT
™

OLD COMPUGLORY

This program puts a rippling flag on your screen faster than Betsy Ross ever imagined possible. It's not really hard to do, just LIST this BASIC program to see the techniques used.

With hi-res animation, you can add humor and excitement to your programs' graphics. Imagine what you could do with blinking eyes and facial movements in cartoons.

Read the strip into your computer and run the program. The flag continues to wave until you press CONTROL-RESET.

OLD COMPUGLORY
appeared in
Art and Graphics on the Apple II/IIe
by William DeWitt
John Wiley & Sons

Read into: Apple II series

1| **2|**
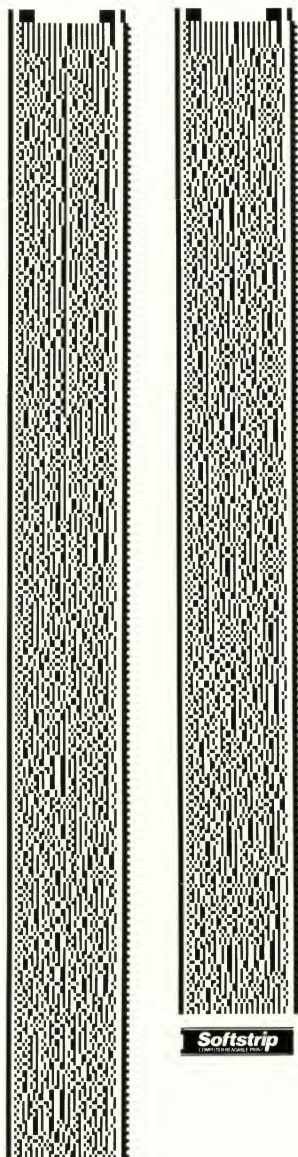
In the next few months, this new technology will begin to enlarge the potential of both the software and publishing industries. There are already plans for over 100,000,000 pages to contain
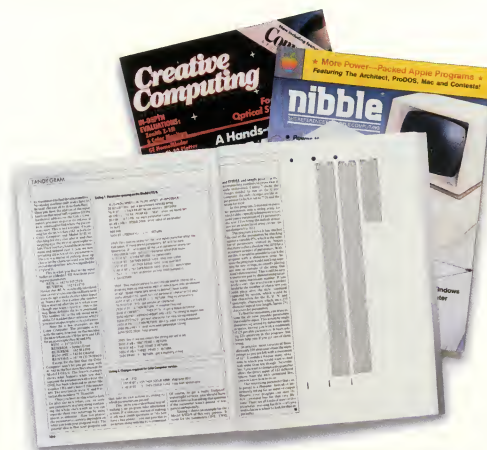
Softstrip™ data strips. In fact, many publishers you're familiar with will be featuring Softstrip™ data strips in their books, magazines, and newsletters.

Why not sample the programs you've got? Just take this pamphlet to your dealer and put them under a Cauzin Reader.

The Softstrip™ system from Cauzin. Proof that the shape of things to come is here today.

Softstrip®
COMPUTER READABLE PRINT
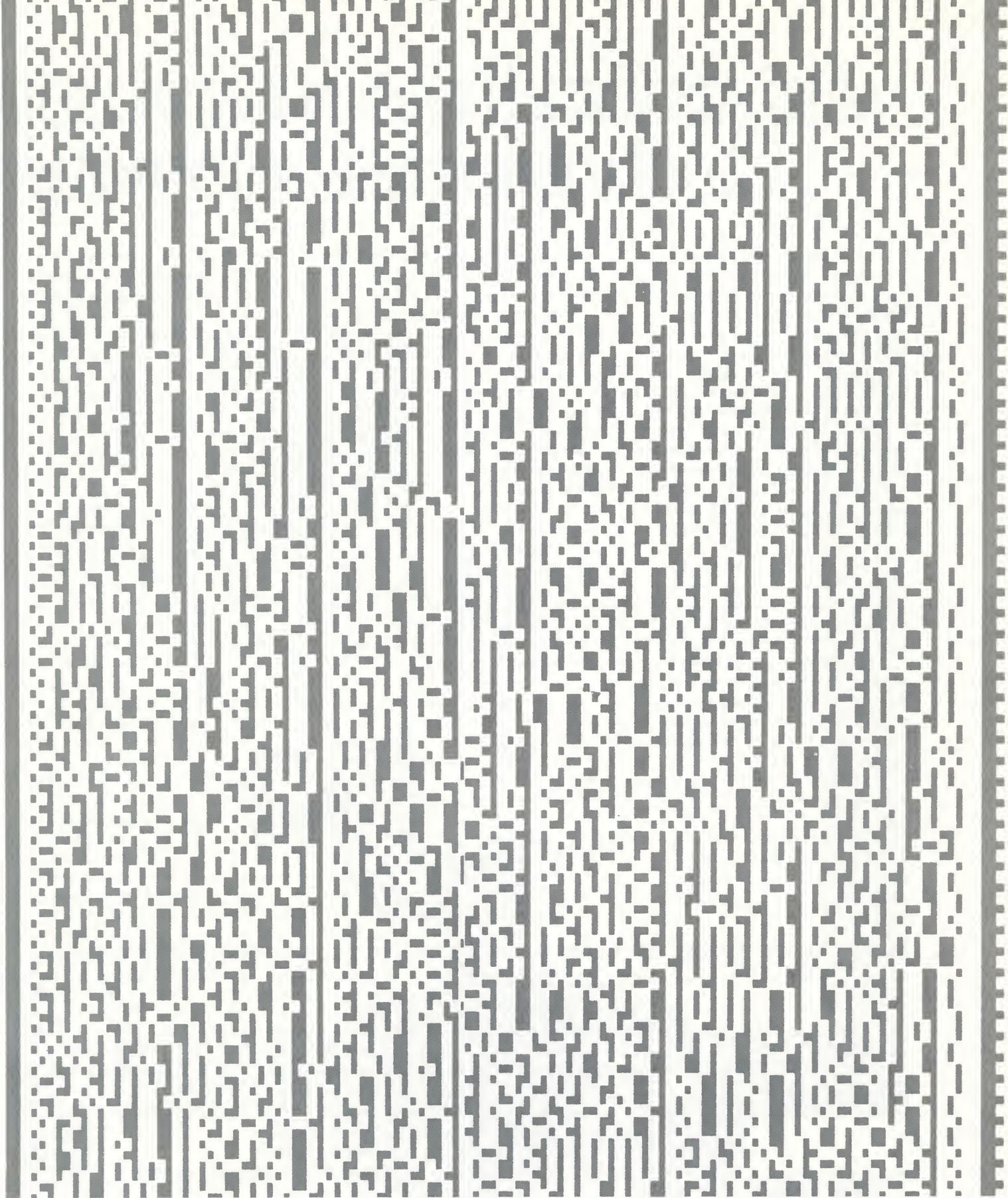
CAUZIN

Creators of the Softstrip(tm) Technology

Applications of the Softstrip™ System
Computer Technology that Means Business

In BOOKS, JOURNALS, and MAGAZINES

Softstrip™ technology can make any published product more useful to its audience. When a magazine or book has data strips, people can enter the data into a computer using the Cauzin Softstrip System Reader. Some of the applications are:

Tables of Contents

Softstrip™ encoded Tables of Contents in periodicals, can be used to update computerized reference data bases.

Software Program Listings

Printing data strips containing computer programs make software entry fast and accurate. Any software that can be stored on a magnetic disk can be printed on data strips. Every language from Assembly to BASIC to Pascal, even music and graphics can be stored on data strips.

Data Tables and Text Material

Information provided on data strips, printed in periodicals, can be easily, quickly, and accurately entered into data bases, spreadsheets, or word processors. This can be applied to market-research projections, legal forms, financial reports, engineering analyses, scientific research studies, and even medical records.

Educational Text Books

Softstrip™ data strips can be printed in teachers' manuals, text books, and resource materials. They can also be printed in classroom books to supply every student with their own copy of software at a negligible cost.

In BUSINESS DOCUMENTS

Softstrip™ data strips can be printed on business documents to make data entry easier, faster, and more accurate. Forms listing financial transactions, shipping events, schedules, and even billing data are applications of Softstrip™ technology.

Financial Statements

Data strips can be printed individually on monthly checking account statements or investment summaries to allow tracking and reconciliation.

Packing Slips

Encoding prices, quantities and discounts on a data strip speeds data entry and increases accuracy when reconciling with a purchase order.

Utility and Service Bills

Data strips make the billing data available in computer-readable form allowing customers to analyze usage patterns.

Internal Telephone Directories

Changes to telephone numbers encoded on data strips makes it easy for people to update their computerized directories.

IN COMMUNICATIONS TO PROSPECTS, CUSTOMERS, AND DISTRIBUTORS.

Price Lists/Catalog Materials

Price lists, catalog listings, and even entire product specs can be encoded on data strips.

Newsletters

Newsletters can carry software, program updates, data tables, and even ads on data strips.

Brochures and Advertisements

Softstrip™ data strips printed within brochures and magazine ads can offer immediate interactive software for demonstration—right from the page!

Manuals

Software and data on data strips can be right next to the text that explains its function.

Product Specification Sheets

Software aids for design or technical data can be printed on the same spec sheet that describes the product.

Softstrip™
COMPUTER READABLE PRINT
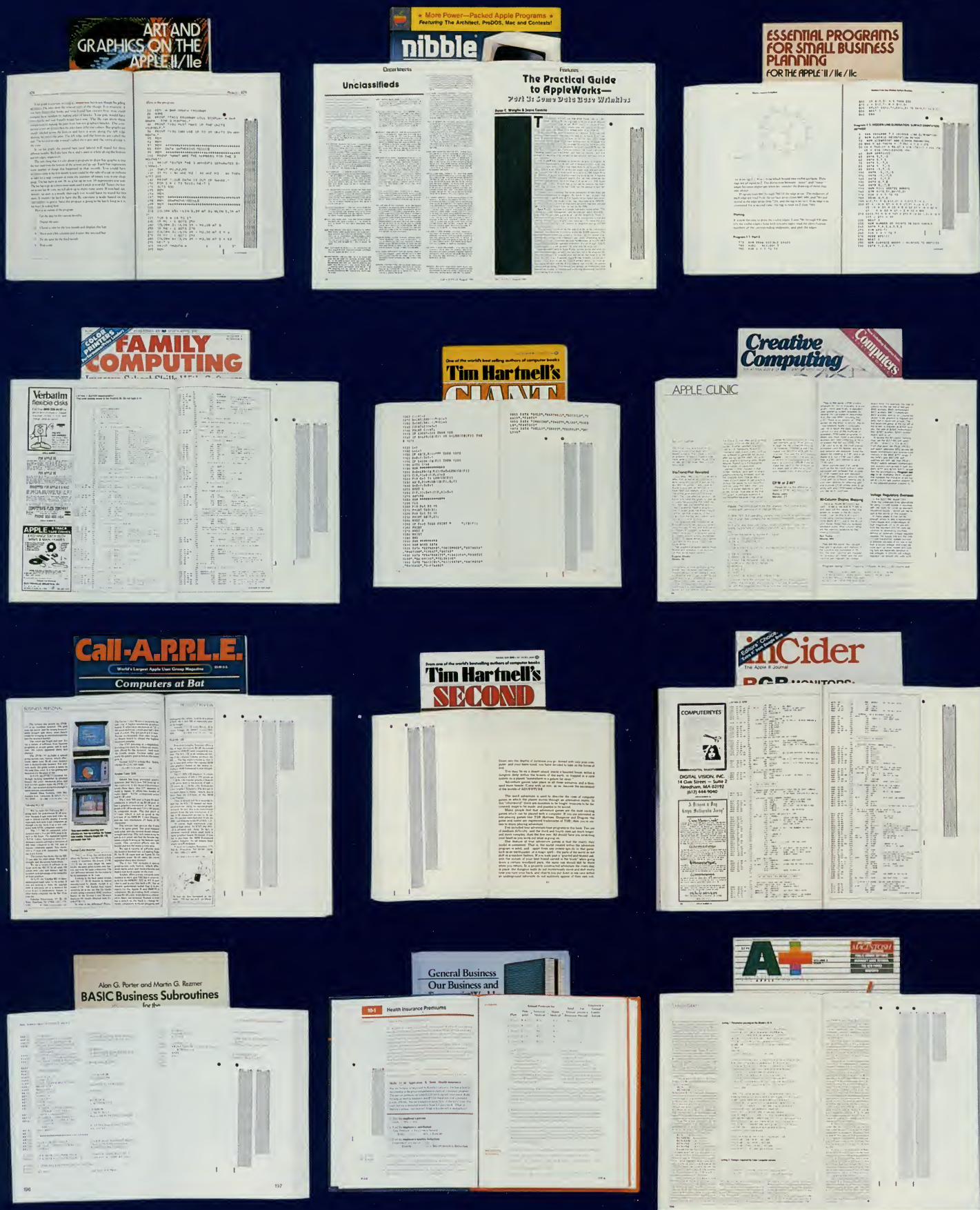
100,000,000 SOFTSTRIP™ DATA STRIPS ARE COMING.

AND THE ONLY WAY
CAN READ THEM IS V

For years, avid personal computer users have spent hours laboring over their keyboards. Just to enter the numerous programs published in magazines and journals.

While that might sell hundreds of thousands of magazines, it probably doesn't do much for your business.

Now there's something that will let personal computer users access data and programs without typing. But better yet, it will give you a significant piece of the action.

Introducing the Softstrip™ system. An entirely new computer technology that will make it easier than ever before for magazines to publish programs.

And for businesses to generate and distribute internal memos, reports and newsletters.

With the Softstrip™ system, data and programs can be published quickly and conveniently in the form of ⅝-inch-wide strips.

One strip can contain up to 5,500 bytes of encoded data. And eight strips can fit on a single page.

Users can enter data strips into their personal computers in seconds. All that's needed is the Softstrip™ reader by Cauzin, a scanner that plugs into their cassette or serial port and automatically reads the data strip.

There are already plans for 100,000,000 strips to appear in print. In virtually every

Y YOUR CUSTOMERS WITH ONE OF THESE.

Softstrip System Reader by Cauzin

major computer magazine. Including <u>Byte</u>, <u>Nibble</u> and <u>PC</u>. In books from Addison-Wesley and John Wiley & Sons. And in our own custom packages called Stripware,™ individually packaged programs that will generate ongoing sales for you.

That's a lot of programs.

To read them, people will have to buy a lot of Cauzin Readers.

Find out how big the opportunity is.

Get full details on our dealer program, including a national advertising and public relations campaign designed to reach both existing and first-time personal computer customers. Call us at 203-573-0150 and ask for the Director of Dealer Support.

The Softstrip™ data strip to the right contains three programs from Nibble Magazine demonstrating text, sound and hi-res graphics.

Softstrip
COMPUTER READABLE PRINT

Softstrip

DEMOSALE

This program is a working Lotus 1-2-3 template with sales forecasts for a hypothetical company. Read the strip into your computer and then retrieve the file into a blank worksheet. All the text, numbers and equations are now on your computer.

Read into: IBM pc or compatible

POLAR COORDINATES

Plotting sine and cosine functions wouldn't be of much interest if not for the beautiful designs they draw – hearts, roses, and four-leaf clovers.

This program randomly displays one of the standard polar coordinate graphs. The key you press to start the program is used to generate the design, so try different keys each time. Discover what POLAR COORDINATES can do.

Read the strip into your computer and run the program. The program is menu-driven from that point. Exit any time you want by pressing CONTROL-RESET.

POLAR COORDINATES
is from
The Basic Apple //c
by Gary Cornell &
William Abikoff
John Wiley & Sons

Read into: Apple II series

MORTGAGE CALCULATOR

Calculate the monthly payment for a mortgage based on principal, interest, and payback period. Is it time to re-finance? Where are you getting the best deal? This short Applesoft program can help you.

Purchasing a new home involves many complex decisions. One way to simplify this is to play "What if?" with the amount of a mortgage, interest rate, and number of years to pay it off. Project the monthly payments and total amount you will pay with MORTGAGE CALCULATOR.

After you read the strip into your Apple, run this program. It is completely menu-driven. Enter three pieces of data: principal (no commas), interest rate (e.g. 11.5), and years to pay back.

MORTGAGE CALCULATOR
by Alan H. Stein
appeared in
Nibble, December, 1984
Vol. 5, No. 12

Read into: Apple II series

1 | 2 |

Softstrip

Softstrip
COMPUTER READABLE PRINT ™

Cauzin Systems, Inc., 835 South Main St., Waterbury, CT 06706

AI TOOL FOR THE MAC

See Page 29.

Robert Simon (left) and Heidi Roizen of T-Maker Software

A Canadian Pirate Riles U.S. Makers

BY JIM FORBES
INFOWORLD STAFF

At least two U.S. software developers are preparing legal action against a Canadian microcomputer consultant who is making unauthorized copies of their software and selling it for profit to U.S. and Canadian customers.

The consultant, Randall C. Stieben of Mississauga, Ontario, publishes a six-page catalog offering to sell pirated Macintosh programs for $15 a disk. The catalog lists some 240 copyrighted titles and also offers photocopies of the documentation for many of the programs at 12 cents per page.

Among the software offered for sale are Lotus Development Corp.'s Jazz, Paladin's Crunch spreadsheet, and Software Publishing Corp.'s PFS series of programs.

"Stieben is a thief. He's stealing our property," said Fred Gibbons, president of Software Publishing Corp., in Mountain View, California. "This is the kind of thing that makes it difficult to take copy protection off software products."

Stieben's activities outraged software developer T-Maker Co., also of Mountain View. Listed among the 240 programs that appeared in Stieben's catalog were T-Maker's Click On Worksheet and Click Art Effects.

Continued on Page 8

After the Split at Apple's Core

Apple Without Jobs

BY JIM FORBES
INFOWORLD STAFF

Apple after Steven Jobs will focus hard on the business market, with Jobs' beloved Macintosh as its flagship product.

But the company will move quickly to open the architecture of the machine upon which it has pinned its hopes, and it will seek to respond to, rather than to drive, the computer marketplace, according to company president John Sculley. Sculley made his remarks in Stockholm, Sweden, where he was attending a conference on office automation.

Apple is already working on an expandable Macintosh, Sculley said. However, the new version is intended to enhance the product line, rather than to displace the existing closed-architecture Macintosh, he said.

"Apple will make it possible for others to connect to the Macintosh, encourage and support third-party development, and depend more on dealers," Sculley said.

Sculley's remarks indicate his intention to change Apple from the archetypical Silicon Valley start-up of Jobs' reign to a more traditional American corporation, said an Apple vice president, who declined to be identified. Sculley's Apple will become more reliant on third parties for production of key components, service, and support. The shift will likely trigger the closing of Apple's Fremont, California, Macintosh manufacturing facility within the next 12 months, the vice president said.

Sculley will also force line managers in Apple's Production Operations division to be more concerned with procurement and quality control issues. A horizontally integrated Apple could resemble Jack Tramiel's Atari, the vice president said.

One possible Sculley project, expected in 1987, is a small, portable personal workstation, originally developed by the Apple II Group, described by one Apple source as a second-generation Dynabook. The machine will accept bit-mapped graphic images over telecommunications lines, said Jean-Louis Gassée, Apple's director of product development. Such a workstation would overcome some of the current limitations of videotext, seen as a key element in bringing computers into the home.

Sculley is vastly different from the Apple leaders before him. He rarely participates in meetings, deferring decisions instead to those subordinates in charge of the meeting. This contrasts sharply with Apple's former chairman,

John Sculley, Steven Jobs: The former co-workers are now involved in litigation.

Jobs, who tended to seek control in every situation. "Although John Sculley isn't likely to be nominated for any human resources awards, he's effective at making the type of decisions that need to be made in the coming months," the vice president said.

Sculley has proven himself a formidable
Continued on Page 6

Jobs Without Apple

BY SCOTT MACE AND CHRISTINE McGEEVER
INFOWORLD STAFF

Although Apple officials have talked about what they intend to do now that Steven Jobs is gone, Jobs has said little about his plans for Next Inc., the company he founded after leaving the Cupertino, California, computer maker.

Jobs has said he will develop products for the educational market, and last week officials at Carnegie-Mellon University in Pittsburgh confirmed that Jobs has told them he will develop a high-performance workstation based on research done at the university. The Jobs machine will conform to the so-called 3M standard for educational workstations agreed upon by a number of major universities, including the Massachusetts Institute of Technology and Carnegie-Mellon.

The workstation will likely include 2 megabytes of main memory, will perform
Continued on Page 8

System for Encoding Data Puts Information on Paper

BY MARY PETROSKY
INFOWORLD STAFF

A process for encoding computer data on paper, scheduled to be unveiled today, promises to become a low-cost method of distributing information and software.

The Softstrip system, from Cauzin Systems Inc. of Waterbury, Connecticut, allows text, images, and even digitized sound to be encoded on a strip of paper in a collection of black dots and lines that look like highly condensed bar code. A companion Softstrip Reader scans the paper strip and translates the encoded data, feeding the information through the computer's serial or cassette port. The Cauzin system will initially support only the IBM PC and compatibles, the Apple II series, and the Macintosh. But the company claims the technology is fully portable and can be
Continued on Page 8

- Leading Edge Model D
- Eagle PC Plus II
- Kaypro 16
- Zenith Z-148
- ITT Xtra
- Televideo TPC
- NEC APC III
- IBM PC

$1,495 $1,970 $1,995 $1,998 $2,025 $2,295 $2,320 $2,820
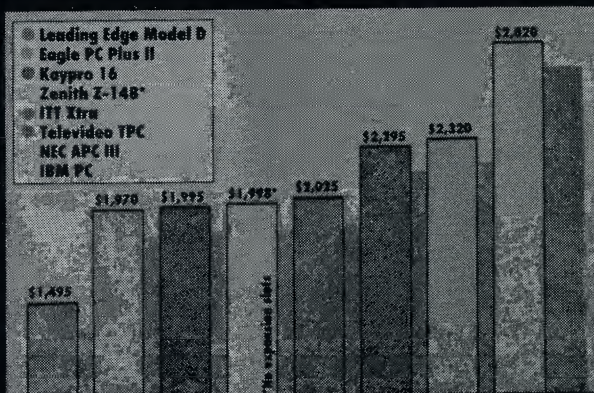
Encoding Data

tailored to any machine.

One data strip, typically measuring 9½ inches by ⅝ inches, can represent up to 5,500 bytes of information, or three typewritten pages. The Reader can process that much information and feed it into a personal computer in about 30 seconds.

A special encoding program available from Cauzin will let users create Softstrips with standard dot-matrix or laser printers.

The Softstrips, while apparently easy to copy, can be easily protected, the firm said. The Reader responds to carbon deposits on the Softstrip. Writing in ink or stamping "confidential" over the face of the original will not impair its use. But any attempt to photocopy such an altered original will place carbon deposits in incorrect locations, rendering the copy useless.

Eighteen publishers who distribute software via books, magazines, and diskettes have already agreed to use Softstrips, which should appear in publications late this year. Softstrip Readers will be available in retail stores beginning in January. Priced at $200, the Reader will be bundled with a cable, communications software, and sample Softstrip programs.

"It opens up a whole new way of distributing information and software. [The Softstrip] has some technological explosiveness to it," said Dave Winer, president of Living Videotext Inc. Winer plans to package sample outlines and templates for two of his company's programs, Thinktank and Ready, in Softstrip format.

If Softstrips become widely used, they could solve a sticky packaging problem for book publishers who now include floppy diskettes with their books. The costs of diskettes, duplication, and inventory could be eliminated with Softstrips, resulting in lower book prices.

The primary advantage of the product is that users can feed data onto either floppy or hard disks without a single keystroke. Although bar code and optical

The Softstrip system encodes computer data on a paper strip that resembles the bar codes on consumer items.

Neil Kleinfeld (left), vice president of marketing and sales, and Robert Brass, president and CEO, of Cauzin Systems, maker of Softstrips

character recognition systems have been available for some time, neither offers the combination of data density, data integrity, and economy that Softstrips promise, said publishers.

"I've been watching the bar code market for years, waiting for something like [Softstrips] to happen," said David Szetela, editor of *Nibble* and *Nibble Mac* magazines. Both publications include a number of programs in each issue. Beginning in January, *Nibble Mac* will offer Softstrip versions of programs such as desk accessories, Macintosh fonts, and musical pieces, according to Szetela. Microsparc Inc., publisher of the magazines, also distributes software and plans to include Softstrip samples of its wares in coming advertisements.

The product's potential has earned Cauzin the financial backing of Eastman Kodak Co., Xerox Corp., General Instrument Corp., and Nokia, a Scandinavian electronics firm. Despite widespread enthusiasm, however, most people who've seen the product agree that its success depends on its becoming a standard. "If it doesn't reach critical mass, it's never going to work," said Bennett Wiseman, director of Office Information Networks at Infocorp, a Cupertino, California, market research firm.

To promote acceptance of Softstrips, Cauzin has targeted intensive users of personal computers as the prime market. "We've gone after three segments: education, computer magazines, and the traditional software segment," said Neil Kleinfeld, vice president of marketing and sales at Cauzin. The company hopes that the Softscript Reader's low price will create rapid acceptance. Eventually, Kleinfeld said, Softstrips could be included on bills from utility companies, credit card companies, and banks, as well as on packing slips and other paper used to track inventory.

One possible drawback of Softstrip is that users may lose patience with the Reader's speed when scanning long programs or lists of data. "Programs of less than 75,000 bytes are candidates for a data strip," Kleinfeld said.
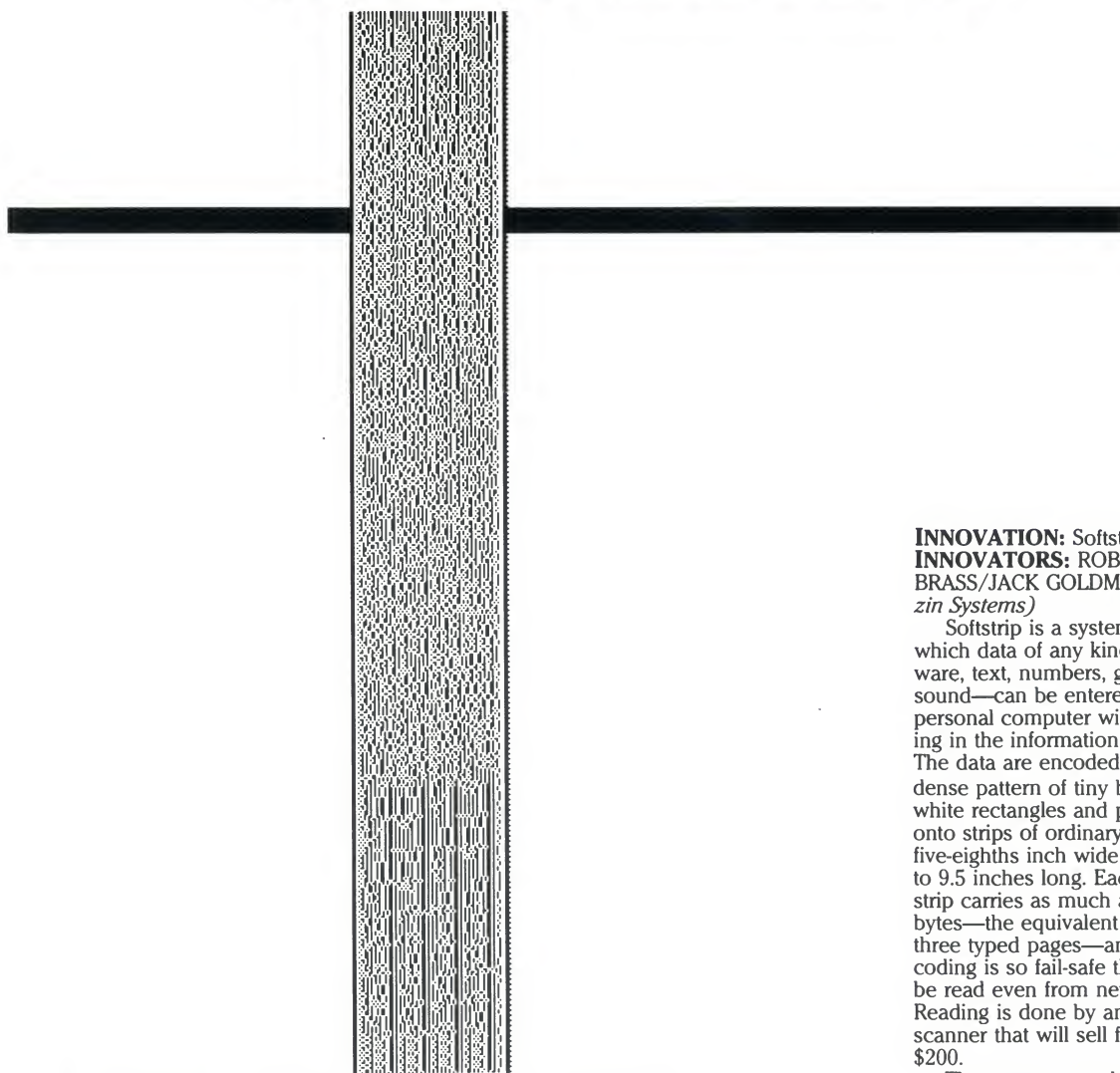
THE YEAR'S TOP
100 INNOVATIONS
And the Men and Women Behind Them

With the Softstrip system, the encoded data can be printed onto ordinary paper.

BRASS

THE CAUZIN SOFTSTRIP System is a completely new way for personal-computer users to receive, enter, store and manipulate software and data—including graphics and sound.

INNOVATION: Softstrip
INNOVATORS: ROBERT L. BRASS/JACK GOLDMAN *(Cauzin Systems)*

Softstrip is a system by which data of any kind—software, text, numbers, graphics, sound—can be entered into a personal computer without keying in the information by hand. The data are encoded as a dense pattern of tiny black and white rectangles and printed onto strips of ordinary paper five-eighths inch wide and up to 9.5 inches long. Each data strip carries as much as 5,500 bytes—the equivalent of about three typed pages—and the coding is so fail-safe that it can be read even from newsprint. Reading is done by an optical scanner that will sell for under $200.

The system was developed by Cauzin's founders: Brass, 50, an inventor with more than 70 patents to his name and former director of Xerox's telecommunications strategies, and Goldman, 63, who was Xerox's chief technical officer and founder of that company's Palo Alto Research Center. Cauzin will license the strip technology to magazines, banks, book publishers—anyone who wants to transfer large amounts of information directly into customers' computers.

PC Products

FOR BUSINESS USERS OF IBM PCs AND COMPATIBLES

A CAHNERS PUBLICATION $4.95 OCTOBER 1985

PC Products

PRODUCT WATCH

Cruising the Strip...

Remember the 1950's fad of seeing how many people could cram into a telephone booth? Well, Cauzin Systems Inc., a start-up firm based in Waterbury, Conn., has taken that more-into-less idea several steps further by devising a method of packing programs and data into a roughly nine-inch-long, half-inch-wide data-filled area it calls a SoftStrip. These strips, which were officially introduced earlier this month, are read by a mechanically driven electro-optical scanner offered as part of the SoftStrip system.

The strip itself consists of specially constructed and tightly grouped graphics patterns — somewhat resembling swatches of conservative tweed — that are printed on ordinary paper or film, and can be reproduced in magazines, books, or journals. In fact, hundreds of publications will be reproducing the strips starting this January as part of their regular editorial matter.

The strips, which can be printed in the margins of a book or magazine, are read by a specialized optical reader which resembles a foot-long tube. The tube is placed on the strip, aligned, and then a small "truck" equipped with a lens, motor, and microprocessor electronics rides along a track to read the strip. Data strips can be read in about 30 seconds, and the device even corrects for misalignments.

While the strips will not replace floppy disks as data carriers, the data accuracy for the strips, which can hold an average of 5,500 bytes of information each, is rated better than that of the fearless floppies.

SoftStrips can also go where no floppies dare to tread, including into an ordinary envelope or even folded within a wallet. For example, a strip can be created to contain accounting or spreadsheet data and then be sent in an ordinary envelope to far-off field offices where it can be read or input into other programs. Since the readers are sensitive only to black characters and marks, the strips can be crumpled, torn, and even written upon with colored ink without too much fear of risking the integrity of their data.

The strips and the reading device (which costs about $199) are based on the tinkerings and inventions of Robert L. Brass, President and Chief Executive Officer of Cauzin, whose past experience includes stints at Bell Labs and Xerox.

The company's other co-founding collaborator and Chairman of the Board, Jack Goldman, has held positions at Xerox, where he created and administered three research laboratories; Ford Motor Co., where he was director of the firm's research lab; and the Carnegie Institute of Technology, as head of its Laboratory for Magnetics Research.

Together, Brass and Gold perfected the reading system and intend to market it by presenting it as a new technology and means of disseminating data, rather than a new product. They also lend their names to the corporate moniker, Cauzin, which was created from the chemical symbols for brass and gold (Cu»copper, Zn»zinc, Au»gold).

While the strips may see their greatest use in books and magazines, they will also be offered as vehicles for commercial software distribution in the form of computer programs published by Cauzin. The programs, called Strip-Ware, will be sold off-the-rack for under $13 in computer stores and can be read into your computer via the electro-optical reader. The company expects several dozen strips to be available by the first of this month, with many more in the stores by early next year.

In the meantime, look for a review of the SoftStrip system in an upcoming issue of *PC Products*. Readers who can't wait to see their favorite strip, however, can contact the firm at 835 S. Main Street, Waterbury, Conn. 06706; (203) 573-0150.

Software Soon in Paper Distribution

BY ADAM B. GREEN

I look at new products all the time, and most of them rate somewhere between a "So what?" and an "Oh wow!" Only a few ever earn an "Of course," a distinction reserved for products that satisfy an obvious need for a large number of people. The computer spreadsheet is a perfect example of an "of course" product; another is the newly announced Softstrip, from Cauzin Systems Inc. of Waterbury, Connecticut. After spending a day with Bob Brass, the inventor of Softstrip, I am very impressed by the product's potential. Softstrip is actually a new technology for printing computer data and programs on paper in a format that is almost 40 times as compact as the bar code labels used on consumer products. The printing is done in strips ⅝-inch wide and up to 9½-inches long. A single strip can contain as many as 5,500 characters, and a letter-size page filled with Softstrips will hold between 40,000 and 50,000 characters — roughly the same as 20 pages of printed text.

The other half of the system is a motorized "reader," which will probably retail for less than $200. It looks like a small fluorescent light fixture and plugs into an RS-232 serial port of an Apple II or IBM PC. Software provided with the reader can automatically scan a full-length Softstrip and copy it onto a disk file in about 30 seconds. The software is also smart enough to copy many
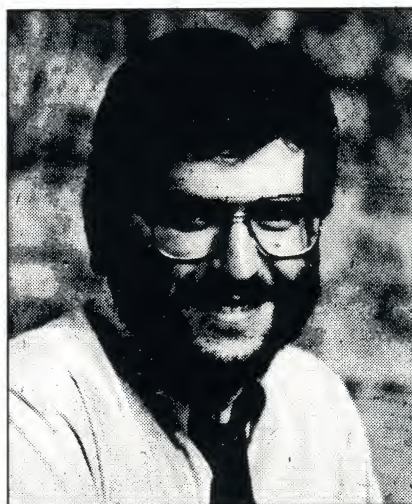
Softstrips into one disk file; human intervention is required, however, to move the reader from one Softstrip to another.

To put these numbers into perspective, the daily results of the New York Stock Exchange is typically 65,000 characters. This amount of data could be printed with a page and a half of Softstrips and copied onto a disk with a reader in about six minutes.

Cauzin Systems is producing Softstrips by printing oversized versions with dot-matrix printers and photographically reducing them; in the future, laser printers will be used to print the strips directly in the correct size. Once an original Softstrip is produced, additional copies can be made with a plain paper copier, raising an entirely new realm of controversy in copy protection.

Softstrip is a technology with as much potential for changing our society as the Xerox copier or the floppy disk. There is no chance of Softstrip eliminating disks; you still have to load the data onto a disk before your computer can use it. In convenience and price, however, it competes favorably with the floppy disk as a distribution medium for both programs and data.

Softstrip also removes many disk compatibility problems, at least for data. An ASCII data file printed in Softstrip format can just as easily be read into an Apple II as an IBM PC. Word processors, spreadsheets, and databases, however, will still not transfer from one operating system to another.

Once the Softstrip technology is released, people will undoubtably wait for software before buying the Softstrip reader. And, software companies aren't likely to release software in the Softstrip format before anyone buys a reader. Cauzin Systems has a unique plan for solving this classic chicken-and-egg problem. It is persuading as many book and magazine publishers as possible to include Softstrip-formatted programs and data in their publications.

Cauzin Systems is first approaching publishers of computer-related magazines and books with this proposal, but once the idea catches on it should be possible to move on to mass market periodicals. I think gaining the support of *The Wall Street Journal* would be a critical factor. It is *the* paper of record for financial news, and there seems to be a high correlation between *Journal* readers and microcomputer users. If much of the financial data in the *Journal* were also available in Softstrip format, the 1-2-3 users alone would buy enough Softstrip readers to make it a success.

The one weakness I can detect in the Softstrip system is the speed of the reader. Fifty-five hundred characters every 30 seconds translates to just over 180 characters a second; hardly a torrid pace. Translating the equivalent of an IBM PC floppy disk full of text from the Softstrip format would take well over 30 minutes. And the actual time is greater because you have to move the reader from one strip to another every 30 seconds. Of course, these are only the first readers to be produced. If the development of modem speed technology is any example, the technology involved in reading Softstrips should improve rapidly with demand. Until the speed of the reader is increased, however, a comfortable size for a Softstrip data file is limited to 20,000 characters; this can be translated to disk in less than two minutes.

There are plenty of applications for Softstrip that fit within that size constraint. The IRS could print 1-2-3 models of all the tax forms; newspapers could print real estate listings in a Dbase file; and an ordinary automobile manual could include an entire expert system program for auto repair.

I can't be sure if Softstrip will succeed, but it seems as though all the market factors are in its favor. I know that I'll be updating the course notes for my seminars to the Softstrip format as soon as the readers are available. After all, paper is cheap, and training can be as competitive as publishing.

Adam B. Green is a free-lance author and personal computer consultant who has been on the inside of the software business for several years. His views on new software trends appear every other week in Software Insights.

Cauzin intros technology that puts software on paper

By Robert Scott
C+SN field editor

WATERBURY, Conn. — A new storage technology that allows software to be placed on paper may affect both what computer stores sell and how they operate their own businesses when products are shipped at year's end.

The new technology is called Softstrip, and was developed by Cauzin Systems, with the financial backing of Eastman Kodak, Xerox and General Instrument. Cauzin was founded by two former Xerox executives, Robert Brass, its president, and Jack Goldman, company chairman.

The technology is used to produce software programs, called StripWare, which require a $200 Softstrip Reader to translate the information on strips into signals which can be read by a pc.

"The ramifications are incredible," says Tim Bajarin, vice president of Cupertino, Calif.-based research firm Creative Strategies International, in support of the technology.

"Ninety-nine per cent of the applications have not been thought of," adds Gideon Gartner, head of the Gartner Group, based in Stamford, Conn.

Cauzin said it has already lined up major software authors to develop programs and has reached agreement with major publishers, such as Houghton-Mifflin, Holt Rinehart and CBS Publishing, and with magazine publishers such as Creative Computing, Family Computing and Byte, which will be distributing Softstrips in their publications.

(Byte has already used the Softstrip, while other publications are preparing to distribute issues containing the strips.)

Neil Kleinfelt, Cauzin's vice president of marketing, said the company will begin recruiting dealers by COMDEX/Fall. No agreements have yet been reached with any computer store dealers for any of the products.

But Kleinfelt believes dealers will want to sell and use the products when they become available in January. (Shipments will begin in December, but product volume reaching stores that month will be low.)

The Softstrip system involves printing encoded patterns of highly condensed software programs and data on a 5/8-in.-wide strip of paper. The strips can then be read by the Softstrip Reader, which plugs directly into a computer's communications interface through a cassette or RS-232 connector.

According to Bajarin, who has tested the program, the strips are extremely durable. Creative Strategies found users can mark and write over the strips, as well as put the paper in photocopiers, and still retrieve the data.

Cauzin said that strips can survive spills, folds and tears. They can also be encoded so that the data on the strip is not reproduced when the strip is photocopied.

Gartner believes many companies can use strips to send advertising to their mailing lists. He added that the technology "provides for new applications for anybody who is in the business of distributing information."

Kleinfelt said one of the earliest applications which could be developed will involve banking for small companies.

Although large companies get monthly statements on computer media, many smaller companies still get printed statements with information that must then be entered into a computer.

Banks would be able to use Softstrip to mail printed statements with the encoded material. The Reader can then be used to enter the statement directly into a computer without having to enter it manually, thereby saving time and reducing errors.

Kleinfelt believes that computer retailers can use the strips to deal more effectively with their customer base. Stores providing publications or mailings to their end users can use Softstrips to update their installed base.

Each data strip measures 5/8 in. wide, and are from 1 to 9½ in. long. Each strip holds up to 5½K and can be linked together for lengthier programs.

The Reader measures 16½ in. long, 3 in. wide and 2½ in. high. It will be available for both IBM, Apple II and Macintosh computers in January.

Cauzin also plans to sell proprietary software that will allow end users to print their own strips. Kleinfelt said computer stores will be able to take advantage of the process easily, since users with the Cauzin software can use both laser printers and dot matrix printers to put data on paper.
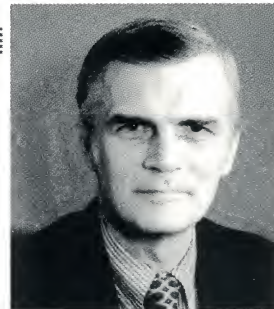
Something New Has Been Added

We are pleased to introduce an exciting new technology in this issue of *Nibble Mac* — Nibble Strips. The technology was developed by Cauzin Systems, Inc., and it allows programs to be printed in coded strips that can be read directly into your Macintosh from the printed page. The Cauzin Strip Reader, a lightweight optical scanning system, automatically reads, decodes and enters the data into the computer's memory in a few seconds.

To test the coding and printing quality, this issue contains Nibble Strips for one of the smaller programs. If all goes well, we will begin publishing Nibble Strips for the major programs within the next two issues of *Nibble Mac*.

YOU'LL HAVE CHOICES

Of course, we will continue to offer our major programs on diskette for those of you who do not want to type them into the Macintosh. But if you are a Macintosh enthusiast who regularly types in or purchases programs on diskette, a Cauzin Strip Reader will give you an automatic source of machine-readable programs for just pennies per program.

The initial investment is not trivial. A Cauzin Reader retails for approximately $200. But we hope that once the initial investment is justified, the Cauzin Reader will open the *Nibble Mac* market to the vast majority of Macintosh owners who want a continuous supply of inexpensive, original programs, but do not want to bother with typing in programs from listings.

A LITTLE HISTORY

Over the years, we have seen numerous attempts to put machine-readable programs on the printed page. Most have suffered from low reliability and low density coding, so the program code took up a lot of space. The Cauzin technology appears to have solved both of these problems. Each data strip can hold up to 5,500 bytes (approximately three typewritten pages) of program code. The strips can be linked together for lengthy programs or databases, and one printed page can hold up to 45,000 bytes.

THE IMPLICATIONS

The strip technology has the potential to revolutionize data and program distribution. The strips can contain anything you can put on a magnetic disk. In addition to program listings, they can contain tables of contents, new product demonstrations, music, databases and associated data — almost anything you can name.

If our test proves successful, we'll be searching for these added-value databases to complement the programs that we publish. The strips can also be particularly valuable for expanding the variety of languages and assemblers that are used to develop and publish utility programs. With strips, you won't have to own a particular assembler or compiler to load and run programs published in those languages.

HOW IT WORKS

The Cauzin Strip Reader is about the size of a short fluorescent tube, and slightly longer than an 11-inch page. The reader is physically placed on top of the printed strip and is aligned with two registration marks that are printed beside the strip. A loader program is then started.

The Strip Reader's case contains an optical reading device that moves on wheels, like a miniature truck. When the loader program is initiated, the optical reader starts to move. First, it reads information from the strip that tells the reader the number of bytes in each line, the height of each line, and the paper-to-ink contrast. Then it continues down the page, reading alignment information and program/data code. The optical reader contains 169 lenses that perform various speed, alignment, and reading functions.

Strip data accuracy is checked and error correction is provided by parity bits at the beginning and end of every data line (as well as by a strip checksum). The effect of this approach is to produce very high reliability and an undetected bit error rate of less than one bit per ten billion bits (per Cauzin specifications).

A particularly interesting feature is the use of near infrared light that permits the reader to see through colors, stains and spills on the printed strip. In short, the technology works very, very well.

THE TEST

To be candid, we regard our use of this technology in 1986 as a major market and technology test. Many of the variables regarding the Cauzin Reader are not yet known. If you have a passing understanding of statistics, you know that if you take a string of events (all of which have a success probability of over 90%), you have to multiply them together to get a composite success probability (90% $\times$ 90% = 81%, 81% $\times$ 90% = 72.9% and so on).

We are optimistic about the technology — that's why we're launching this test. And we're counting on your feedback through the coming year to help with our future planning.

Mike Harvey
Mike Harvey
Publisher

P.S. The Cauzin Strip Reader is available at more than 600 computer retailers across the country. If you can't find one locally, you can write for more information to: Cauzin Systems, Inc., 835 Main St., Waterbury, CT 06706.

KODAK MVS
MODULAR VIDEO SYSTEM

New, compact, modular 8 mm system from Kodak.

- full-feature 8 mm video cassette recorder with stereo TV reception and PCM digital stereo sound.
- a transfer VCR for dubbing 8 mm to or from any format video tape.
- modular audio cassette recorder with multi-channel PCM digital stereo sound.

- record from several sources including compact disc players.
- self-contained 8 mm camcorder to make video movies for instant TV viewing.
- compact 8 mm video camera with separate recorder for easy video taping anywhere.

Connect to a KODAK
MVS Tuner-Timer—and to
your television set for an:
8 mm VCR
with stereo TV reception
and PCM digital stereo
sound.

Connect to a KODAK
MVS-550 Converter-
Charger (or Tuner-Timer)
and to any format VCR
for a:
**Transfer Video
CASSETTE RECORDER**
and video replay system.

Connect to a KODAK
MVS Converter-Charger,
a stereo amplifier and
speakers for a:
**Modular Audio
CASSETTE RECORDER**
with multi-channel PCM
digital stereo.

Connect to a KODAK
MVS Video Camera
for an:
**8 mm video
CAMCORDER**

Tether to a KODAK MVS
video camera head
for an:
**8 mm VIDEO
CAMERA**

- Tape and replay 4 hours of video action with PCM (Pulse Code Modulation) digital stereo sound.
- Optional multi-channel digital stereo recording for up to 12 hours of exceptional PCM audio.
- Watch one show, tape another. Or program the tuner-timer to tape 8 events over a 3-week period.
- On-screen programming with full featured wireless remote control.

- Cable-ready VHF/UHF inputs for digital selection of 169 channels.
- Recording of TV/FM simulcasts.
- 7X forward/reverse search, automatic rewind.
- Still-frame capability without sound.
- PCM/FM mixing and audio dubbing capabilities.

- Transfer 8 mm video cassettes to or from any format video cassettes.
- Select 2- or 4-hour recording modes.
- Record and replay audio/video, video only, or audio only.

- Full tonal richness and clarity of advanced digital stereo sound.
- Multi-channel digital stereo recording for up to 12 hours of exceptional PCM audio.
- Microphones for live recordings.

- Create video movies virtually anywhere, anytime for instant viewing.
- Integral video camera-recorder weighs only 4 pounds.
- 6:1 power zoom lens with infrared auto or manual focus.
- Fade control for smooth scene transitions.

- Electronic viewfinder shows what you tape, and in-camera playback.
- Fully automatic white balance.
- ½-inch Newvicon tube, 10-lux capability for video-taping in low light.
- Three sources of power; battery, ac, or car battery.

- Ease and convenience of very small, lightweight video camera and separate recorder.
- All the versatility, features and benefits of the KODAK MVS Video Camera with optional shooting and carrying convenience.

Your Ideal KODAK 8 mm Modular Video System

❶   ❷
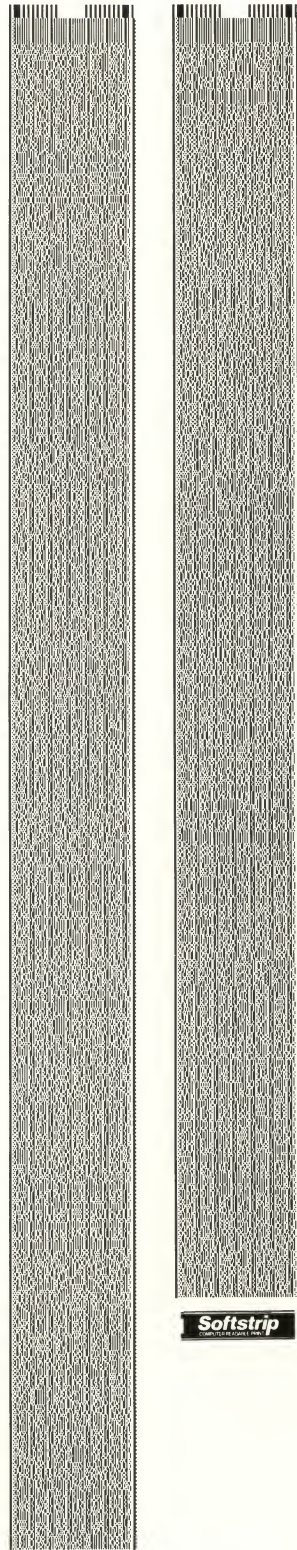
These Softstrip computer read-able prints contain the informa-tion and logic to help you select the Kodak MVS components that best meet your needs. The unique Softstrip computer read-able print uses paper as a con-venient delivery method for delivering densely printed digi-tal information. A low-cost Cauzin Softstrip reader is needed to read this information into your personal computer.

Softstrip
COMPUTER READABLE PRINT

Glossary

APPLESOFT

An extended version of the BASIC language designed to run programs on Apple II series computers.

BIT

A binary digit (0 or 1); the smallest possible unit of information, consisting of a simple two-way choice such as yes or no, on or off.

CASSETTE CABLE

The cable provided in the accessory kit to hook the reader up to a Apple II, Apple II Plus or Apple //e computer to the cassette port.

CASSETTE PORT

The two connectors on the back of an Apple computer provided for attaching a cassette recorder to a computer.

CAUZIN

From the periodic table of elements:
```
COPPER  =  CU
GOLD    =  AU
ZINC    =  ZN
```

CAUZIN COMMUNICATIONS PROGRAM

A program provided to allow a computer to communicate with a Cauzin Softstrip™ reader.

DATA DISK

The disk that the Cauzin communications program will write to once it reads data from a strip.

DISK (aka DISKETTE)

An information storage medium consisting of a flat, circular magnetic surface on which information can be recorded.

DISK DRIVE

A device that writes and reads information onto a disk.

DISK OPERATING SYSTEM

A software system that enables a computer to control and communicate with one or more disk drives.

DOS

See disk operating system.

ERROR MESSAGE

A message displayed or printed to inform the user of a problem or error.

HOOVER

A fish who died during the development of the Softstrip™ system.

MODEM

Modulator/Demodulator; a device that enables a computer to communicate information over a telephone line.

MODEM PORT

The connector on the rear panel of an Apple //c provided for modem hookup.

POWER TRANSFORMER

An electrical device designed to supply low voltage power to the Cauzin reader (or any type of computer unit)

PRINTER PORT

The connector on the rear panel of an Apple //c provided for attaching a serial printer to your computer.

READER

An optical device that reads encoded information, printed on paper, and communicates it to a computer.

SAMPLER

A collection of reprinted program materials in Softstrip™ format provided as part of the Cauzin Softstrip™ System.

SERIAL INTERFACE

An interface in which information is transmitted sequentially, one bit at a time, over a single wire or channel.

The Softstrip™ System Reader Instruction Manual

Table of Contents

Disclaimer

This equipment generates and uses radio frequency energy and if not installed and used properly, that is, in strict accordance with the manufacturer's instructions, may cause interference to radio and television reception. It has been type tested and found to comply with the limits for a Class B computing device in accordance with the specifications in Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference in a residential installation. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

Reorient the receiving antenna

Relocate the computer with respect to the receiver

Plug the computer into a different outlet so that the computer and receiver are on different branch circuits

If necessary, the user should consult the dealer or an experienced radio/television technician for additional suggestions.

Reader Care

Your Cauzin Softstrip reader is a precision optical device. Treat it with the same care that you would a camera. Always return the reader to the base, it will protect the lens system.

Discovering the Softstrip™ System

You have taken the first step in becoming a part of a new technology that promises to change the way you think about computer operations and applications.

At the heart of your Cauzin Softstrip™ system is your reader. This optical scanning device has been designed to interpret a totally new technique of encoded information that appears as a structured pattern of black and white rectangles on paper. Softstrip™ technology allows text, graphics, even digitized sound to be printed on any type of paper. Cauzin data strips offer everything from business programs and data to educational materials, utilities, as well as entertainment. The content may require a single data strip or multiples, which can be linked together to expand your universe of available quality software.

For starters, we have included a special Sampler in your Accessory Kit. This library features representative works of some of the most popular names from computer magazines, book publishers, and software authors who, together, form the nucleus of an ever expanding team supporting the ongoing development of software on paper.

This manual has been created to give you information and guidelines to set up and operate your Cauzin reader.

The Softstrip™ System provides a 3-step process for accurate operation:
1) The Cauzin reader inputs information contained on data strips.
2) Incorporates sophisticated error correction and detection techniques to ensure automatic entry of data.
3) Allows for data strip material to be directly loaded onto a disk.

Your Softstrip™ System comes to you in two separate boxes. One contains your Cauzin reader; the other is an Accessory Kit specifically for your Apple computer.
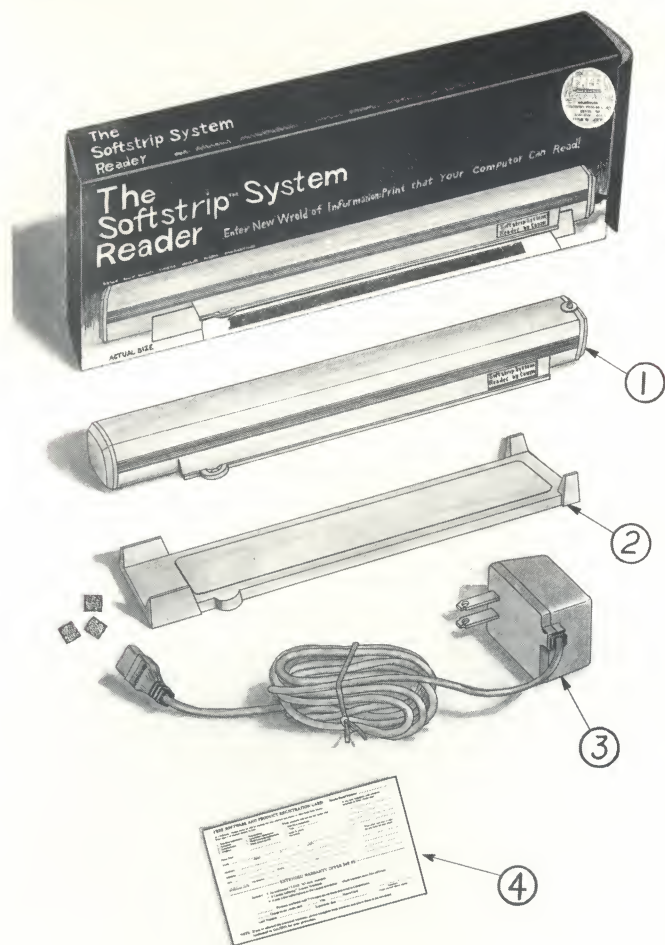
THE LARGE BOX CONTAINS THE FOLLOWING:

① The Cauzin Softstrip reader

② A base for the reader and a set of three velcro fasteners

③ A power cord with attached transformer

④ Warranty card

THE ACCESSORY KIT CONTAINS THE FOLLOWING:

① The Cauzin communications disk

② Extra disk label for a backup copy

③ This instruction manual

Connector cables

④ — Apple II, Apple II Plus, Apple //e cassette version

⑤ — Apple //c serial version

⑥ Softstrip™ Program Sampler containing 50 programs and demos.

Connecting the Reader

Make sure your computer is off.

At one end of the interface cable there is a telephone-style plug. This should be plugged into the jack on the end of the reader.
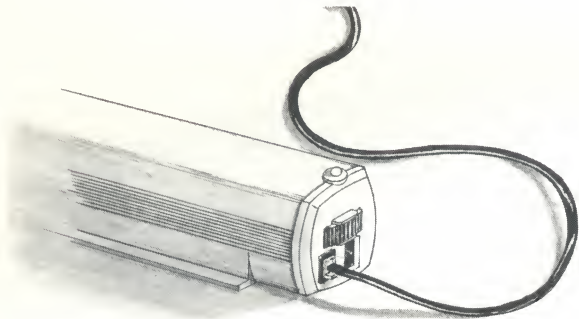
If you own an Apple II, Apple II Plus, or Apple //e

Select the cable with red and black phono connectors. The red connector plug should be inserted into the first cassette port which is next to the monitor connection. The black connector plug is inserted into the second cassette port.
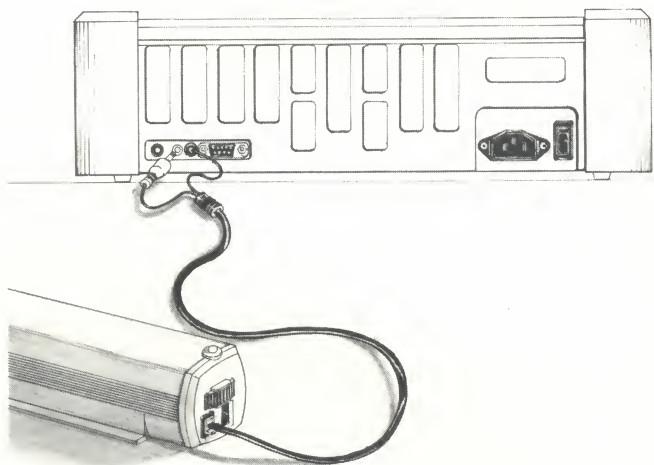
If you own an Apple //c

Select the cable with the large round (DIN) connector. Insert this plug into the modem port (a telephone icon appears above it). If this port is unavailable, you may use the printer port (a printer icon appears above it), but you must inform the communications software of this change. The OPTIONS menu will guide you thru the simple change of customizing the new port for the reader.
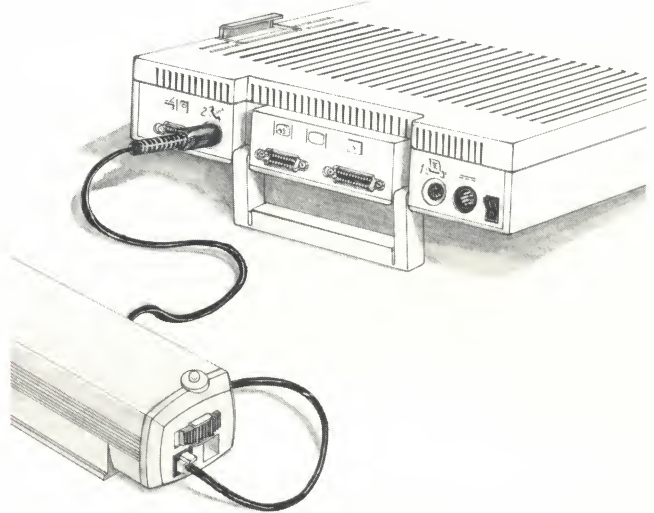
For Apple II, Apple II Plus, Apple //e and Apple //c complete the connections as follows:

Firmly insert the transformer plug into the reader socket so that it is secure.
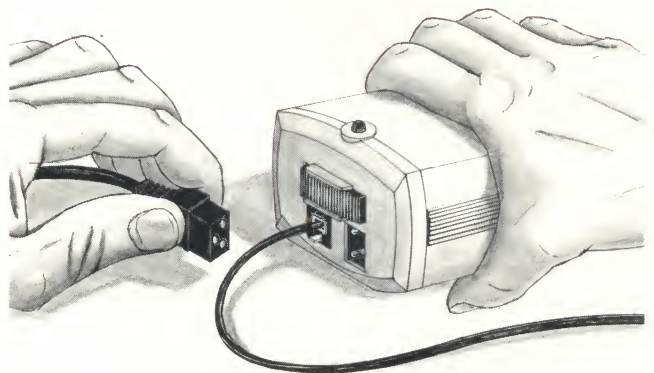
Plug your transformer into a nearby electrical outlet.

Attaching the Reader Base

The base is provided as a resting place for your reader when it is not being used. We recommend that you use the base since it can help protect the precision optics of your reader. There are three pieces of velcro included in the reader box that you may choose to use for placement of the base.

Below are general guidelines for attaching the velcro to the bottom of the base. If you choose to put the base on top of your monitor or computer, be careful not to cover any air vents. In addition, make sure that the surface you do use is flat so that the reader will not fall off.

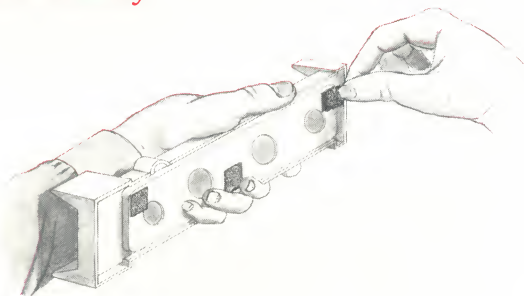*We advise against using the reader above a monitor since there may be electrical interference causing the reader to operate incorrectly.*

Peel off one side of the velcro backing and carefully adhere patches on underside of base.

Peel off backing of velcro, line up over intended surface and firmly place down.
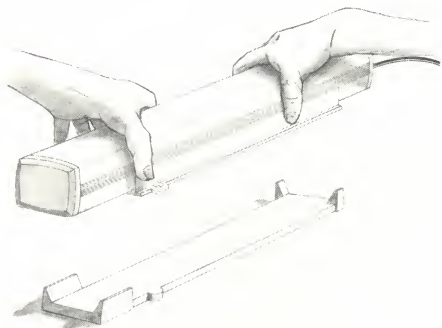
Place reader in the base, making certain that it is secure.

Anatomy of Data Strip

A close-up view of a strip reveals six distinct sections. The header (1) at the top tells the reader the number of bytes in a line, the height of each line, and the paper to ink contrast level. Running vertically down the sides of the strip are the startline (2), the checkerboard (3) and the rack (4). These identify the boundaries of every horizontal line to be read. They also work in tandem to feed the reader alignment information.

Contained within the body of the strip, between the checkerboard and rack, is the file's data area (5). Another important component part of the data strip is the alignment dot and black line (6) at the side, which is used as a guide for correctly lining up your reader.
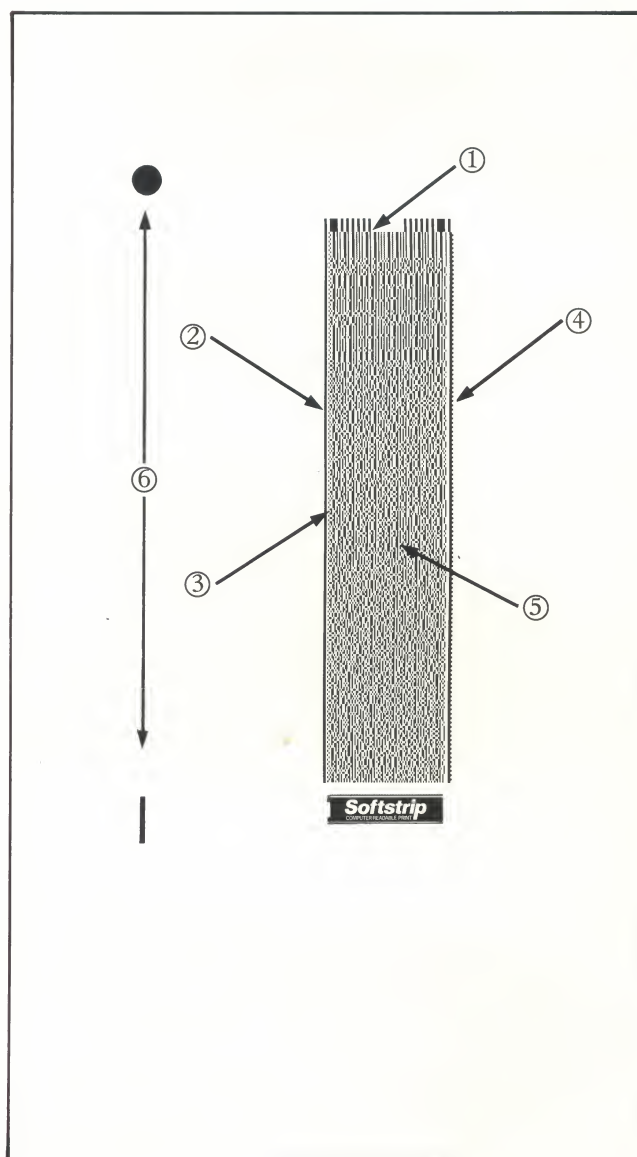
Backing up the Reader Communications Software
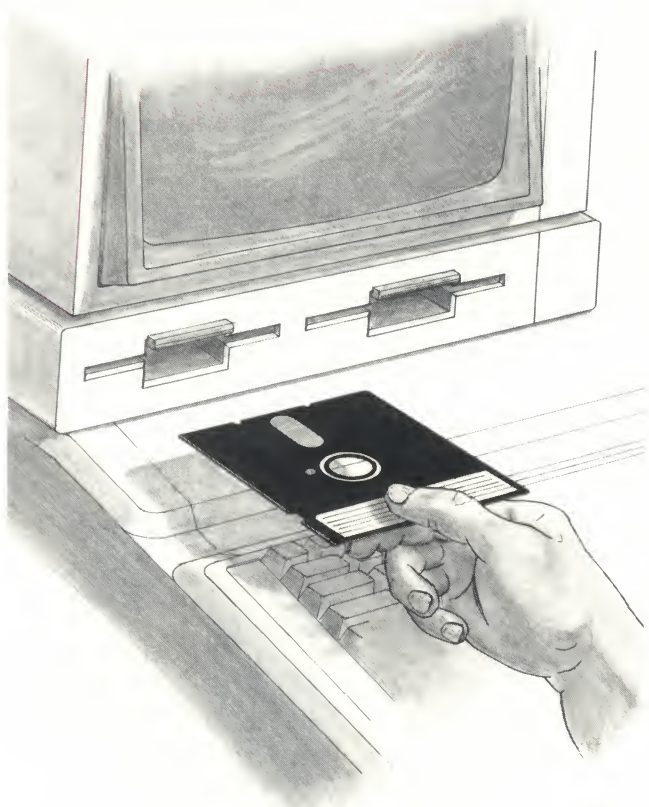
The Cauzin communications disk is unprotected. We have included an extra disk label and recommend that you make at least one backup.

Use the backup and save the original in your files. Use COPYA under DOS 3.3 or the FILER under ProDOS to copy the Cauzin communications software on your Apple II, Apple II Plus, Apple //e or Apple //c. Refer to your Apple Computer manual for specific copying instructions.

Getting Started

Insert your backup copy of the Cauzin communications disk into drive 1 (this is the internal disk drive in the Apple //c). Turn on the computer to start loading the software. If you have an Apple //e or Apple //c, and your computer is already on, you can restart the system by holding down the **CONTROL** key, pressing the **OPEN-APPLE** key, as well as **RESET.**

When you see your first prompt on screen, you are asked to select the operating system. Enter **P** for ProDOS. For DOS 3.3, you will have to enter **D**. If you are not certain which option is correct for your equipment, try the **P** key command and read further in your Apple owner's manual for more answers and solutions.

```
CAUZIN SYSTEMS

Presents Doubleboot
Copyright 1985 by MicroSPARC, Inc.

Type <P> for ProDOS; <D> for DOS3.3
```

Once you've made your operating system selection, the Cauzin communications program will load in. The following main menu screen will appear.

```
          CAUZIN
        SOFTSTRIP(TM)
READER COMMUNICATIONS - 1.0
   APPLE //e CASSETTE PORT
_____

    1 - READ TO DRIVE 2

    2 - OPTIONS

    3 - EXIT TO PRODOS
_____

   USE ARROW KEYS TO SCROLL
   <RETURN> TO SELECT AN ITEM
```

Now that the Cauzin communications program is loaded in memory, this disk is not required in your disk drive. We suggest you use a different disk to store data strips that come from the reader.

ONE DRIVE SYSTEM
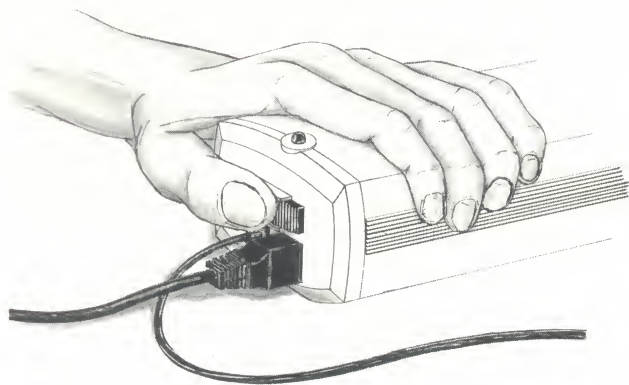
Insert an initialized data disk into drive 1

TWO OR MORE DRIVE SYSTEMS

Insert an initialized data disk into drive 2

Reading a Data Strip

Just above the connectors, at the end of the reader, there is a power switch. Turn the reader on and a green light on top will signal that you are ready to 'read'.


Just to one side of the data strip there is a black dot and a short black line. These are your alignment marks.

Carefully place the reader so that its loop fits over the black dot and the edge of the reader just touches the black line. You are now ready to 'read'.

Multiple data strip programs

To the side of the alignment marks you will see numbers signifying the correct sequence to follow for 'reading' in the data strips. You will receive on-screen prompts indicating which strip to read next.
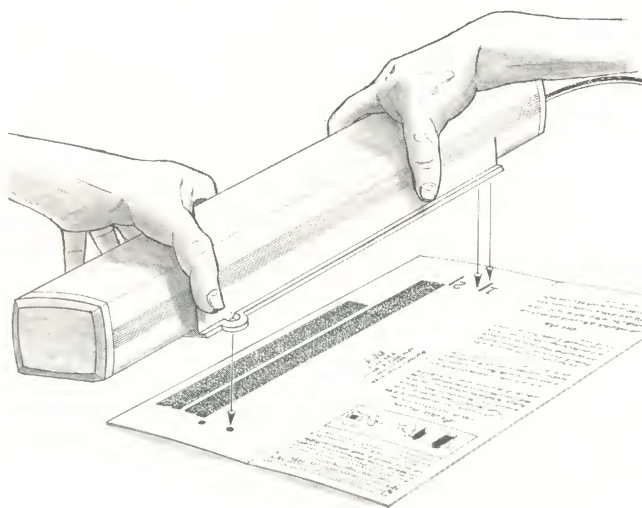
With the reader aligned over the first strip, and the Cauzin communications disk loaded, select the option:

READ TO DRIVE

By pressing RETURN or the option number indicated on screen. This function reads the data strip onto your data disk.

```
        CAUZIN
      SOFTSTRIP(TM)
 READER COMMUNICATIONS  -  1.0
   APPLE //e CASSETTE PORT
 _____

   [ 1 - READ TO DRIVE 2 ]

     2 - OPTIONS

     3 - EXIT TO PRODOS
 _____

   USE ARROW KEYS TO SCROLL
   <RETURN> TO SELECT AN ITEM
```

READER COUNTDOWN SCREEN

Check that the reader has been correctly aligned and press RETURN when ready.

At the bottom of your screen you will see a numerical countdown. This indicates an approximate read speed and verifies that the data strip is being read.

```
      CAUZIN SYSTEMS
 SOFTSTRIP READER COMMUNICATIONS


 _____

   INSERT STRIP #1 UNDER READER

   READER COUNTDOWN  [      ]
      <RETURN> WHEN READY
      <ESC> TO ABORT READ
```

It will take a few seconds before the countdown begins since the reader is performing its initial alignment at the top of the data strip.

READER STATUS SCREEN

The files read from the data strip will appear on screen along with the number of bytes each file contains. As the files are saved to the data disk, the percent (%) completion column will record the status of a given file.

Until all files are 100% complete, there will be additional data strips to read.

```
        CAUZIN SYSTEMS
        STRIP STATUS
       DISK IS 57% FULL

 T  FILENAME ON STRIP     BYTES  %
 _____

 A  ELIZA                 7645  100
 B  TUNES                 3402  80


 _____
   INSERT STRIP #2 UNDER READER
      <RETURN> WHEN READY
      <ESC> TO ABORT READ
```

When files of the same name are already on your disk, they will appear HIGHLIGHTED via an on-screen prompt. They may be files you previously scanned in from a particular data strip, or one that has a very similar name to something else. You will be given the option to overwrite the current files, change data disks, or abort the read process without affecting the current disk files.

```
            CAUZIN SYSTEMS
             STRIP STATUS
           DISK IS 57% FULL
   T FILENAME ON STRIP    BYTES  %
   _____
   A [ELIZA        ]      7645
   B TUNES                3402
   _____

   [HIGHLIGHTED FILES] ARE ON YOUR DISK

     1 - HELP           2 - OPTIONS
     3 - OVERWRITE FILES  4 - EXIT
```

As the reader scans a data strip, the information is stored in your computer's memory. Upon completion, the communications program will validate the strip information and then store it on your data disk.

If there are multiple data strips the program will prompt you to move to the next strip. The communications program will also detect strips read out of sequence and prompt you to use the correct strip.

Once all the data strips have been completely read onto your data disk, an on screen message may appear, giving you the option to run the program.

Press "Y" to run the program.

Hit any other key to return to the main menu.

```
            CAUZIN SYSTEMS
             STRIP STATUS
           DISK IS 62% FULL
   T FILENAME ON STRIP    BYTES  %
   _____
   A ELIZA               7645  100
   B TUNES               3402  100
   _____


   --READ OPERATION COMPLETED--
        RUN < ELIZA  > Y/N?
```

Select the OPTIONS menu by pressing RETURN or the option number indicated on the screen.

```
               CAUZIN
             SOFTSTRIP(TM)
     READER COMMUNICATIONS - 1.0
        APPLE //e CASSETTE PORT


         1 - READ TO DRIVE 2

         [2 - OPTIONS]

         3 - EXIT TO PRODOS


        USE ARROW KEYS TO SCROLL
       <RETURN> TO SELECT AN ITEM
```

The following menu screen will appear.

Select HELP to view the tutorial on how to utilize the Cauzin communications program.

```
         CAUZIN SYSTEMS INC.
            OPTIONS MENU
   _____

        [1 - HELP]

        2 - SELECT DATA DISK

        3 - DISK CATALOG DRIVE 2
   _____

        USE ARROW KEYS TO SCROLL
       <RETURN> TO SELECT AN ITEM
        <ESC> FOR PREVIOUS MENU
```

Cauzin Help Menu

The Cauzin Softstrip™ reader is designed to communicate with your Apple Computer thru your CASSETTE PORT. (Apple //c's SERIAL PORT).

Data is read sequentially from the data strips and automatically logged on your data disk in drive #2 (or #1 on Apple //c).

As the reader scans the data strip(s) a countdown will show its progress.

Files that exist on your data disk must be overwritten (deleted and recreated), to save the data strips. The system automatically highlights the existing files and allows you to overwrite.

You can change data disks in drive #1 or #2, or use a new initialized disk.

After data strip files have been saved to disk, you can run them at your leisure from Applesoft.

Choosing "SELECT DATA DISK" allows you to change the default data drive location.

```
CAUZIN SYSTEMS INC.
      OPTIONS MENU
_____

  1 - HELP

 [2 - SELECT DATA DISK]

  3 -  DISK CATALOG DRIVE 2

_____

   USE ARROW KEYS TO SCROLL
  <RETURN> TO SELECT AN ITEM
   <ESC> FOR PREVIOUS MENU
```

This menu provides you with system customizations and default values. If you have an Apple //c you will also be able to change the serial port connection here as previously described.

```
     CAUZIN SYSTEMS INC.
    SELECT DATA DISK MENU
_____

     DRIVE . . . .  1

     SLOT . . . . .  6

     PORT . . . . .  2 (MODEM)

_____
USE <RETURN> & ARROW KEYS TO SCROLL
   ENTER SLOT AND DRIVE NUMBERS
      <S> TO SAVE SELECTIONS
      <ESC> FOR PREVIOUS MENU
```

You can use any slot where your data disk is located. The valid slots available have values between 5 and 7.

The data drive number can be only 1 or 2.

The port (for //c user's) can be only 1 or 2.

If you want to make these selections permanent, enter an S, otherwise the selections are temporary for this use.

Reader Alert

We have tried to ensure that each data strip reads the first time, every time. If, however, you experience some difficulties, we offer you these helpful hints.

Read the messages displayed to you. Most problems are easy to solve and you will be guided to the solution by the on-screen display.

If the reader is having trouble reading a particular strip, check the alignment of the reader and try again. Most reading problems are a case of misalignment.

The following charts on the next two pages are a checklist for identifying the most likely cause of an error message and a probable solution.

ERROR MESSAGE	CAUSE	CORRECTION
Unable To Read — Please Retry	Bumping or moving the reader during operation	Realign the reader and begin again
	Torn data strip	Try to carefully tape data strip together and retry
	Damaged, crumpled, etc.	Smooth out and retry
	Coffee stain, or any liquid makes strip wet	Dry and retry
	Reading surface not level	Flatten surface of book or magazine where data strip appears
	Transmission (checksum) error	Retry strip read
	No data strip under reader	Place data strip under reader, align, and retry
Strip Alignment — Adjust and Retry	Data strip out of position	Realign the reader and data strip and begin again
Reader Not Ready	Reader not turned on	Check power and switch
	Apple II, Apple II Plus, Apple //e users may have an accelerator card that changes the timing of the cassette port.	Remove or disable card with a "preboot" disk, normally provided with these cards to run at normal Apple speed.
Reader Not Ready	Reader not connected to Apple II, Apple II Plus, Apple //e properly.	Check connections or reverse cassette plugs
	Connector in wrong Apple //c port	Put connector in modem port 2 or use OPTIONS menu to utilize the Apple //c printer port 1
Disk I/O Error	No data disk in drive	Put an initialized disk in data drive
	Data disk not initialized or formatted for different operating system	Initialize disk or use one that's initialized for this system Note: you cannot mix ProDOS and DOS 3.3
Disk Full	Not enough room on data disk to store data strip file(s). Note: there must be enough room for all the files to be stored. Partial files are not written.	Use another disk with more space or initialize another data disk.
Not an Apple Data Strip	The intended system for this data strip is not an Apple computer.	You will be given the option to save the file anyway, but remember that the file will not be usable unless it's a text file. (Use an editor or word processor).
Disk Write Protected	Your data disk has a write protect tab on it	Remove write protect tab or use another data disk.

The Softstrip® Syste

AT FIRST BYTE!

AND THE ONLY WAY
CAN READ THEM IS

For years, avid personal computer users have spent hours laboring over their keyboards. Just to enter the numerous programs published in magazines and journals.

While that might sell hundreds of thousands of magazines, it probably doesn't do much for your business.

Now there's something that will let personal computer users access data and programs without typing. But better yet, it will give you a significant piece of the action.

Introducing the Softstrip™ system. An entirely new computer technology that will make it easier than ever before for magazines to publish programs.

And for businesses to generate and distribute internal memos, reports and newsletters.

With the Softstrip™ system, data and programs can be published quickly and conveniently in the form of ⅝-inch-wide strips. One strip can contain up to 5,500 bytes of encoded data. And eight strips can fit on a single page.

Users can enter data strips into their personal computers in seconds. All that's needed is the Softstrip™ reader by Cauzin, a scanner that plugs into their cassette or serial port and automatically reads the data strip.

There are already plans for 100,000,000 strips to appear in print. In virtually every

YOUR CUSTOMERS WITH ONE OF THESE.

Softstrip™ System Reader by Cauzin

major computer magazine. Including <u>Byte</u>, <u>Nibble</u> and <u>PC</u>. In books from Addison-Wesley and John Wiley & Sons. And in our own custom packages called Stripware,™ individually packaged programs that will generate ongoing sales for you.

That's a lot of programs. To read them, people will have to buy a lot of Cauzin Readers. Find out how big the opportunity is.

Get full details on our dealer program, including a national advertising and public relations campaign designed to reach both existing and first-time personal computer customers. Call us at 203-573-0150 and ask for the Director of Dealer Support.

The Softstrip™ data strip to the right contains three programs from Nibble Magazine demonstrating text, sound and hi-res graphics.

Softstrip ™
COMPUTER READABLE PRINT

Softstrip

DEMOSALE

This program is a working Lotus 1-2-3 template with sales forecasts for a hypothetical company. Read the strip into your computer and then retrieve the file into a blank worksheet. All the text, numbers and equations are now on your computer.

Read into: IBM pc or compatible

1 |

2 |

POLAR COORDINATES

Plotting sine and cosine functions wouldn't be of much interest if not for the beautiful designs they draw – hearts, roses, and four-leaf clovers.

This program randomly displays one of the standard polar coordinate graphs. The key you press to start the program is used to generate the design, so try different keys each time. Discover what POLAR COORDINATES can do.

Read the strip into your computer and run the program. The program is menu-driven from that point. Exit any time you want by pressing CONTROL-RESET.

POLAR COORDINATES is from
The Basic Apple //c
by Gary Cornell &
William Abikoff
John Wiley & Sons

Read into: Apple II series

MORTGAGE CALCULATOR

Calculate the monthly payment for a mortgage based on principal, interest, and payback period. Is it time to re-finance? Where are you getting the best deal? This short Applesoft program can help you.

Purchasing a new home involves many complex decisions. One way to simplify this is to play "What if?" with the amount of a mortgage, interest rate, and number of years to pay it off. Project the monthly payments and total amount you will pay with MORTGAGE CALCULATOR.

After you read the strip into your Apple, run this program. It is completely menu-driven. Enter three pieces of data: principal (no commas), interest rate (e.g. 11.5), and years to pay back.

MORTGAGE CALCULATOR
by Alan H. Stein
appeared in
Nibble, December, 1984
Vol. 5, No. 12

Read into: Apple II series

MacUser

THE MACINTOSH™ RESOURCE

02579

THE SOFTWARE STRIP

Low Cost Software—On Paper!

DESKTOP PUBLISHING
ReadySetGo! Version 2.0

THE CHEAT SHEET
No More Mr. Nice Guy!

ARE TWO HEADS BETTER THAN ONE?
Only Your Consultant Knows For Sure

MEANINGFUL RELATIONSHIPS
Interlace Powers Through the
Database Price Barrier

BREAD & BUTTER BUDGETING
A Flexible, Friendly Home Accountant

THE STAR-STRUCK MAC
A Galaxy of Macintosh Astronomy

BY STEVEN BOBKER

THE SOFTWARE STRIP

REVOLUTIONS ARE ODD THINGS. Sometimes they are sudden and violent. Sometimes you wake up to find they've already happened. And sometimes a revolution occurs without your being aware of it at all.

Examine a revolution; any revolution will do. All have a few things in common. They are all like fire. Certain ingredients are necessary. Remove one and there is no revolution. Revolutions must have a cause, good or bad. There must be weapons or tools. And someone or something must bring everything together at the right time.

Steve Wozniak started a revolution when he created the first mass-produced disk drive for microcomputers. The old way of doing things, using cassette tapes for data and program storage, just didn't cut the mustard. Sure cassette technology worked, but almost in spite of itself. It was slow and very inefficient. But it was all there was. People put up with it, though they wanted and needed something better. That "something better" was the random access disk technology then found only on larger, much more expensive computers. Woz took that technology and made it usable and affordable for micro users. It sparked a true revolution in data storage.

Today users are faced with some new problems. The first is data glut. There is too much data around. While some comes on disks, most of it is printed (in newsletters and newspapers). To make the best and most efficient use of this data, it must be somehow converted into computer readable form. Manual data entry is a solution only if your resources are nearly infinite. Obtaining the material on a disk or via telecommunication to a disk is sometimes possible, but usually very expensive. There has to be a better way.

Even those who program have trouble getting their products to market. The economics of software publishing preclude simple efforts by individuals. The costs of disks, of duplication, of manuals, packaging and distribution all combine to require a substantial investment to bring a program to market. Many programs (although exactly how many no one can say) never see the light of day. And we're all losers for that. If only the costs were lower, the original outlay less.

Sure, there's Freeware or shareware or MacHonorWare or whatever you want to call it, but the number of Mac programmers who have made a decent return from it can be counted on one hand. What is needed is something that might allow programmers to sell their work at low cost and small investment and yet make a profit. The words "low cost" and "small investment" are positively revolutionary in today's software publishing world.

A GLIMMER

A recently developed technology may help solve both problems, that of data glut and that of "cheap" software. Cauzin Systems has created a simple to use, easy to print method of putting data on paper. Its new Softstrip system is relatively inexpensive, both from the users' standpoint and from the creators' standpoint. The tiny black and white squares pack a lot of data into a small space, and the reader is capable of retrieving that data under all but the worst conditions.

Cauzin appears committed to making its technology easily and widely available. That only makes sense, for in true capitalistic spirit, the more systems sold and the more they are accepted, the higher Cauzin's profits will be!

All the elements for a revolution are in place. There is a problem or cause. In fact, there are several. And the weapons or tools are there. The Softstrips and their readers are not widely used yet, but they are there, ready and working. And Cauzin seems willing to lead us into a new era of data and program distribution. The revolution could be happening at this very moment.

WHAT YOU SEE

The Softstrip system is both simple and complex. The actual Softstrips are composed of black and white squares printed on paper. They are the data. Strips are read by a high-tech reading device connected to your computer. Reading a Softstrip results in data or a program on a disk. Let's look at the technical side of the system.

While the Softstrip system has a superficial similarity to bar code,

A new technology promises to make software cheaper than ever and easier to obtain.

The Reader is compact and easy to use and store.

there are two major differences. The first, and most important, is the data density. Bar codes typically get about 3K on a page, while Softstrips can pack just over 40K per page. The other difference is reading ease. Bar codes generally have to be manually scanned, a tedious job on all but the shortest files. Softstrips are read automatically. Users simply align a dot and a line on the paper with a hole and the edge of the reader (and both need be aligned only to a tolerance of 1/16th of an inch). Strips cannot be read out of order; any attempt to do so will be thwarted by the software.

Softstrips encode 8-bit ASCII data (common, ordinary everyday stuff; all Mac programs can be translated into this code) into machine-readable form. The resulting encoded data can be printed in low-, medium- or high-density strips. The density chosen depends both on the means used to generate the data strips and the quality of the ultimate printing process and paper.

Low-density strips can store up 500 bytes in a standard 9.5-inch strip, medium-density allows up to approximately 3400 bytes per strip and high-density contains about 5500 bytes per strip. Strips can be as short as 1 inch long or as long as 9.5 inches. Their width is determined by their density, with low-density strips being approximately 1/2 inch wide, medium-density 3/4 of an inch and high-density approximately 5/8 inch wide.

The data on paper is in the form of what Cauzin calls dibits. A dibit is two successive squares with a black followed by a white representing a zero and a white followed by a black is a one. Thus each byte consists of 16 black and white squares in a row.

Each line of data consists of either two, four or six bytes, depending on the density. As you would expect, the higher the density, the more bytes per line. Lines therefore contain either 32, 64 or 96 squares plus parity and marking information at the ends.

There's not much chance of misreading data. Error detection is pro-

vided by three separate techniques. First, there's a parity bit at each end of the data lines; one is used to check the parity of the odd bits, while the other is used for the even bits. Each line is also checksummed with either a normal 8-bit checksum or an optional 16-bit CRC (cyclic redundancy cycle) checksum. And finally, the mechanical scanning method effectively scans each up to four times and integrates the data to avoid problems caused by irregularities in the printing process.

The result of all this is an error rate that Cauzin claims is less than one bit in 10,000,000,000 bits. We had no read problems in any of the materials we tested, mutilated and retested. This system seems even more immune to error than standard electronic media such as disks.

The real heart of the system, at least as far as the end user is concerned, is the strip reader itself. This electro-mechanical device weighs a scant 20 ounces (not including its cast aluminum base), and is 16.6 inches long by 2.5 inches high by 3 inches wide. It is powered by a small external transformer and connects to the Mac's serial modem port.

The reader is manually positioned over each strip, aligning through a hole at one end and the reader edge at the other. The sensor scans in increments of 0.0025 inch and has an effective accuracy of 0.00001 inch. Since data lines are between 0.01 and 0.04 inches high, each line is scanned several times, each time in a slightly different location. The sensor's on-board circuitry integrates the density of each half of each dibit and decides whether each bit is a 0 or a 1 based on the multiple versions of the information it has obtained.

The actual reading of the data occurs when the sensor illuminates the data with near-infrared light. This light, which is generated by a light emitting diode (LED), heats (very slightly!) the carbon used in black ink and photocopier toner. The sensor then records the heat increase of the dark areas.

This method of reading has many advantages. Users can overwrite datastrips with colored inks or markers and the strips will still be readable.

The strips are also immune to such disk killers as spilled coffee or soda! Just dry the page out and read it.

On the other hand, writing across a strip with an ordinary pencil or printing the strip on colored paper will copy protect the data in the sense that the strip can no longer be photo- or xerox copied and used. Pencil writing contains carbon and so is readable by the sensor.

Photocopying colored papers usually alters the background toner (which contains carbon) level and, again, gives erroneous information to the sensor.

As the reader moves down the page it tracks its own lateral movement to within 5 microns. Its alignment is controlled by two separate servo mechanisms. These self-alignment features let the reader handle Softstrips that are not perfectly flat. It is possible to crumple a page containing Softstrips and then smooth it out and read the data successfully. More importantly, data in magazines can be read without any special preparation. The pages the data is on do not have to be removed and, while they should lie reasonably flat, the reader can handle normal page warps. This ability to correctly read under less than perfect conditions is a major strength of the system.

The optical portion of the scanning system consists of eight rotating cylindrical lenses and an aspherical corrector lens, forming an effective aperture of f/12. The system has a depth of field between 0.05 and 0.08 inches, allowing for warp in the scanned material. A set of 160 additional cylindrical lenses on the rotating cylinder allow the system to maintain very exact control of the scanning rate.

The mechanic elements are mostly plastics with the actual movement controlled by six high-precision molded plastic gears. The electronics consist of an ATMS 7040 8-bit microprocessor and a custom VLSI chip that contains the reader logic, control and communications using four nested phase-locked-loops and several hardware and software servos.

The equipment is as sturdy and

Softstrips. The strip on the left is a low-density strip, that in the middle is a medium-density strip and the right-hand strip is a high-density strip. All three strips show Mainstay Software's tumbling Mac demo. The whole program in low density is 2-1/2 strips long; in medium density it's one strip and a very short second strip; while the high-density version is complete. Try it!

1   1   1
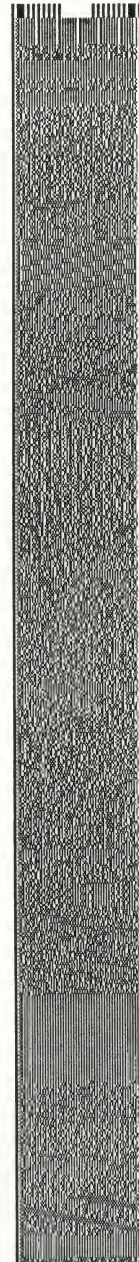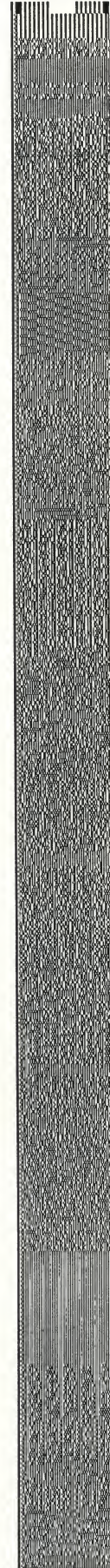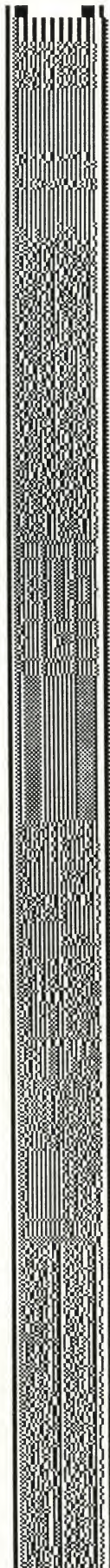
robust as the strips. Some basic tests, such as dropping it on the floor repeatedly, failed to cause problems. Breaking it seems to require a determined effort.

The data that the reader collects is sent to the Mac in 4800-baud bursts, although the average data transfer or throughput rate is between 1000 and 1500 baud, depending on strip density and length. A full 9.5-inch, high-density strip takes about 30 seconds to read.

. . . IS WHAT YOU GET

The system, at least from the user's viewpoint, is both small and simple. Simply buy a reader, which lists for under $200. Software and other data will be available in various printed forms.
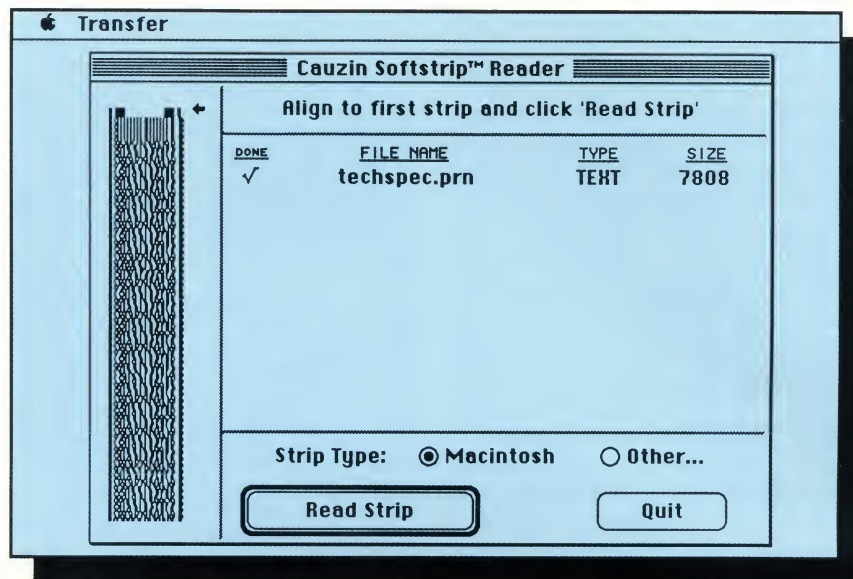
Where do you find this software and data? Right now, the sources are limited. There is a chicken and egg effect in progress. Publishers are reluctant to provide their software and data in Softstrip form since there aren't enough readers in users' hands "to make it worthwhile (or cost effective or whatever)." Reader sales have been slow because there's little

The Cauzin Softstrip Reader. The Transfer menu allows users to try out applications the Reader has put on disk.

to read. Why buy a reader to sit and gather dust? Cauzin is aggressively promoting the use of Softstrips and will do some publishing on its own. As more strips are published in ads and commercially, this problem should fade.

MacUser plans to provide our more extensive code listings in this form, starting in the next issue or two. Other Mac-oriented magazines (such as *Nibble Mac*) either are already doing that or will be doing that. And as soon as demand warrants we'll be providing our indexes and other data compendiums (possibly including our MiniFinders) in this new format.

Newsletters and magazines, particularly in the financial field, will soon be publishing their data in Softstrip as well as normal printed form. Financial data is an excellent candidate for Softstrips, since to be most useful, it must be massaged in analysis programs. That usually means tedious manual entry, with a large probability of a few errors (due to typos) creeping in. A Softstrip or two can save hours of work.

Apple is thinking of providing Mac System software updates in this format. As most certified developers know, the Software Supplements Apple has provided over the last year and a half have been on disks, over a hundred disks per developer. Some

of that material (particularly patches to existing programs and files) could be more easily provided in Softstrip form.

Other businesses can benefit from this technology. Banks, particularly smaller banks, can be more competitive by sending customers statements in Softstrip form. Having the data ready for entry in accounting programs will be a major convenience for customers, both in saving time and reducing errors. Other businesses that now send detailed statements can also provide data in this form.

That's a little bit in the future, however. Right now, users can't generate their own Softstrips. The Softstrip technology is proprietary to the Cauzin Systems and right now Cauzin is the source of all software strips. Cauzin will convert material of your choosing to Softstrips for a fee ($20 per strip, $50 minimum order). That's not practical for statements and other material where each recipient gets different data.

However, programs to generate Softstrips are under development and may be available by the time you read this. Current plans call for Mac software that has the ability to generate low-density Softstrips on the ImageWriter and medium-density Softstrips on the LaserWriter. High-density Softstrips will still require

service bureau production as they use a resolution finer than the 300 dots per inch that the LaserWriter can provide. The materials that Cauzin now produce on its in-house equipment are shipped in the form of photographic film negatives (positives are also available) so that maximum quality can be obtained in the printing process.

Most users will not generate their own strips, but will use Softstrips they find in magazines and newsletters. Sometimes the Softstrips will be part of a booklet consisting of a program and its manual. Cauzin plans to publish programs under the StripWare brand name. These programs will come complete with manual and cost between $3 and $13. These prices may be low, and they show that the overall production and publishing costs for software put on the market in this new format are much lower than in the more traditional marketing methods. This alone can open the market to much new software, much as occurred when the first Apple disk drives

lowered the cost (and time involved) in producing many copies of programs. If the Softstrip System catches on, as it appears to be doing, we can expect an explosion of good, low-priced software.

Softstrip technology offers more than cheap programs. That may be its major attraction for some users, but there is lots more it can do. The possibilities are nearly endless. Data archives can be created, stored and filed in traditional office ways (files in file cabinets). Backups no longer have to eat up expensive storage media. And backups of the backups are just a trip to the copier away.

Very large files can be created, although as a practical matter somewhere around 75K should be considered the maximum size. That's because it does take 30 seconds or so to read in each strip. A 75K file would be 14 or 15 high-density strips. Faster readers are under development and eventually file size should not be limited in any way.

Pergamon Press, a major publisher of scientific journals, has already

started putting the table of contents of its products in Softstrip format. Researchers can use their readers to simply enter the data into their computers and easily extract correct bibliographic references.

Any business that makes extensive use of data can now transmit this data through its distribution chain easily and efficiently. Since more than 40K of data can easily be placed on a single page and read into the computer in less than 5 minutes, significant amounts of data can be transmitted.

The Softstrip system has the potential to revolutionize how we receive, and in fact use, data. It can, as a side benefit, or possibly as its major benefit, trigger an outpouring of new software, much as occurred when disks were first introduced to the microcomputer world. The technology is in place now and it merely remains for it to become widespread. One morning you may wake to discover that yet another revolution has occurred. ⌘

CAUZIN

CORPORATE BACKGROUND

The Company

Cauzin Systems, incorporated in 1984, is the successor organization to Cauzin Research Associates, an R&D limited partnership. In 1983, it began development of: (1) a paper/ink based system of encoding and storing programs, software and data; and (2) the related computer peripheral to read that encoded material into personal computers.

The company's focus has been to develop a print-based personal computer input system that capitalizes on the resources of both the printing/publishing industry and the personal computer. Consumer acceptance will derive from two factors: the economic advantage of readily available, inexpensive or free software, and the strategic value of unique business, personal and educational applications.

The company occupies 40,000 sq. ft. of laboratory and manufacturing facilities in a restored factory at 835 South Main Street, Waterbury, CT.

Corporate founders are Robert L. Brass, president and chief executive officer, formerly director of communications business strategy for Xerox Corporation; and Dr. Jack E. Goldman, chairman of the board, formerly senior vice-president and chief technical officer for Xerox Corporation. Staff members have experience in microelectronics design, electro-optics, computer software and publishing.

The name "Cauzin" was created from the chemical symbols from brass (Cu=copper, Zn=zinc) and gold (Au), representing the names of the firm's founders.

Management

JACK GOLDMAN, Co-founder and Chairman of the Board

Dr. Jack Goldman has distinguished himself over the past 40 years in research and management of industrial R&D.

With the exception of a five year stint on the faculty of Carnegie Institute of Technology as head of its Laboratory for Magnetics Research, Goldman has held distinguished management positions at Ford Motor Company and Xerox Corporation. In 1968 he moved from his position as Director of Ford Motor Company's Scientific Research Laboratory to become Senior Vice President and Chief Technical Officer at Xerox, a post that he retired from in 1983. At Xerox, Goldman was responsible for directing Xerox's world-wide research activities which included the creation and administration of three research laboratories, in Toronto, Dallas and Palo Alto. The Xerox Palo Alto Research Center (PARC) has become one of the preeminent scientific research organizations in the U.S.

-MORE-

Goldman, who holds a Ph.D. in physics from the University of Pennsylvania, has received numerous national honors for his work. He is listed in the "American Men of Science", "Who's Who", and is the recipient of prizes from many scientific organizations, including the Research Society of America, and the American Association for the Advancement of Science.

Goldman is president of the Connecticut Academy of Science and Engineering, serves on the board of directors of General Instrument Corporation, Burndy Corporation, GAF Corporation, Bank Leumi Trust Company of New York, Comdex Scientific Corporation, the Electronic Mail Corporation of America, and Intermagnetics General Corp.

After retiring from Xerox, Goldman teamed up with Robert Brass to co-found Cauzin Systems.

ROBERT L. BRASS, President, Chief Executive Officer

Throughout his 24 year career as engineer, inventor, manager, and strategist, Brass has successfully combined management and technical responsibilities at such blue chip companies as Bell Laboratories, the Auerbach Corporation, and Xerox Corporation.

He started his career as a member of the technical staff of Bell Telephone Laboratories, where he remained for 10 years. Among his accomplishments at Bell was the design of the computer for the first ESS switch.

After a three year stay as a principal in the computer consulting firm, Auerbach Associates, in Philadelphia, Brass joined the corporate staff of Xerox Corporation where he successively occupied the positions of computer software manager, corporate business planning manager, director of market analysis, and director of telecommunications strategies.

Brass received a Master of Science degree in Electrical Engineering from New York University and holds a Bachelor of Science degree from Worcester Polytechnic Institute.

A prolific inventor, Brass holds more than 70 patents and has licensed over 40 products. It was one of Brass's inventions that became the basis for the Cauzin System Reader and Softstrip.

NEIL D. KLEINFELD, Vice-President, Marketing & Sales

As head of Cauzin Systems' Marketing and Sales activities, Neil Kleinfeld is charged with the introduction and strategic market support of the Softstrip™ system. Concurrently, Kleinfeld will be overseeing the company's sales, support and service operations, as well as licensing activities.

-MORE-

An experienced financial analyst, engineer and marketer, Kleinfeld joined Cauzin Systems in November, 1984. Prior to joining Cauzin, he was vice president of marketing and planning at Centronics Data Computer Corp., a $175 million computer peripherals manufacturer headquartered in Hudson, New Hampshire.

Kleinfeld began his career as a financial analyst with Xerox Corporation. During his tenure at Xerox, Kleinfeld was involved in various financial planning roles which supported engineering, marketing and pricing with responsibility for office systems, communications, and laser printing products and computer peripherals.

Kleinfeld received a Bachelor of Science degree in mechanical engineering from Cornell University and a Master of Science in industrial administration from Carnegie Mellon University.

ROGER SHARPE, Vice President, Publishing

A former magazine editor and published author, Sharpe has more than 10 years experience in the publishing industry.

In 1974, Sharpe pursued magazine journalism as a freelance writer, receiving his first assignment from GENTLEMEN'S QUARTERLY, where his work led to his appointment as associate editor. During the time Sharpe was with the magazine, GENTLEMEN'S QUARTERLY experienced its most dramatic growth and popularity.

Sharpe was launched into the world of consumer electronics with the publication in 1977 of his best-selling book, PINBALL!, a chronicle of the coin-operated game industry.

Sharpe has logged an impressive list of publishing credits as editor and editor-in-chief for publications such as VIDEO GAMES, EASY HOME COMPUTER MAGAZINE and EXERCISE FOR MEN. His published works have also appeared in the NEW YORK TIMES, ELECTRONIC GAMES/COMPUTER ENTERTAINMENT, CRAWDADDY, FAMILY WEEKLY, PLAY METER,REPLAY, CASHBOX and a number of other publications. Sharpe is also the author of three self-help books, and has developed a series of six computer books with MacMillan Publishing.

Sharpe is a graduate of the University of Wisconsin in Madison, with a Bachelor of Business Administration degree in marketing.

-END-

CAUZIN

THE CAUZIN SOFTSTRIP™ SYSTEM

QUESTIONS & ANSWERS

1. WHAT IS THE SOFTSTRIP™ SYSTEM?

The Cauzin Softstrip system is a completely new way for people to receive, enter, store and manipulate software and data (including graphics and sound) on their personal computers. The system has two elements:

- The Softstrip data strip which is computer code printed through a unique patented encoding technology, and,

- The Cauzin Softstrip Reader™ , a hand-operated optical-electronic scanning device which automatically reads the information from the data strips into any personal computer.

2. WHAT ARE SOFTSTRIP "DATA STRIPS"?

- Softstrip data strips are specially encoded information (software and data) printed onto ordinary paper in strips typically 5/8" wide and from 1" to 9 1/2" long.

- Each data strip can hold up to 5,500 bytes (approximately three typewritten pages) and can be linked together for lengthy software programs, financial information, or data bases.

- Softstrip data strips can be printed on almost any quality paper using standard printing processes.

- Data strip originals can be printed either to allow or to prevent reproduction on photocopiers, making them excellent for distributing both business and consumer information.

3. WHERE WILL WE GET SOFTSTRIP DATA STRIPS, AND WHAT ARE SOME APPLICATIONS?

Data strips will provide personal computer users with software and data from a wide variety of sources:

- To supplement magazines and books with software programs and data.

- To enhance business newsletters.

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- To supply bank and credit card customers with computer-readable monthly statements and invoices.

- To incorporate "live" software demonstrations in printed advertisements that let users try an advertised product for themselves.

4. HOW DO SOFTSTRIP DATA STRIPS WORK?

- Data strips are created by printing a complex matrix pattern within a set of alignment marks.

- The Softstrip technique uses four interleaved levels of data encoding and redundancy to assure that information can be read even if portions of the printed matrix are destroyed by imperfect printing, dirt, scratches, and the wear and tear of everyday use.

5. WHAT IS THE SOFTSTRIP READER? HOW IS IT USED?

- The Cauzin Softstrip Reader is a simple-to-use, portable, lightweight, automatic scanning device that reads encoded Softstrip data into any personal computer. The Reader is 16 1/2" long, 2 1/2" high, and 3" wide.

- It is designed to rest on its own base which can be placed on top of the personal computer's video display terminal.

- Data strips can be read by the reader without removing it from its base, or, to read data strips in magazines or books, the reader can be lifted from its base, placed directly on the data strip, and read without damaging the printed document.

6. HOW DOES THE READER ATTACH TO THE COMPUTER?

- The reader plugs directly into the personal computer's standard communications interfaces through a cassette or RS 232 connector.

7. HOW DOES THE SOFTSTRIP READER WORK?

The Cauzin Softstrip Reader is a patent-pending, optical-electronic product which uses a proprietary lens system to automatically scan, interpret, and input information from the data strip to the PC. The major functional components of the Softstrip Reader are:

- The reader tube that contains the communications, electronics and power supply components.

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- A "truck" that moves in the tube and contains the Cauzin-designed and manufactured lenses, servomotors, and customized large scale integrated circuits.

The reader scans data strips using a self-aligning raster scan in the near infrared spectrum. This technique allows the Softstrip Reader to automatically correct strip misalignments and it makes the reader immune to most dirt, spills, and stains (such as coffee spills) which may be incurred through normal handling.

8. HOW FAST DOES THE READER ENTER SOFTSTRIP ENCODED DATA INTO A PC?

The reader scans, decodes and inputs a 5,500 byte data strip (about 2 1/2 typewritten pages) in approximately 30 seconds.

9. WHO CREATED AND LICENSES THE SOFTSTRIP TECHNOLOGY?

The Softstrip encoding system was created by Cauzin Systems, Inc., the sole licenser of the technology. Cauzin licenses publishers, financial firms, and businesses to use the company's patent-pending, encoding techniques.

The Softstrip Reader is manufactured and sold by Cauzin through authorized computer specialty stores.

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THE CAUZIN SOFTSTRIP™ SYSTEM:

PRODUCT INFORMATION

The Cauzin Softstrip™ System

The Cauzin Softstrip™ System is a patent-pending proprietary encoding and reading technology which enables software, data, programs, graphics and sound to be printed on paper in a highly condensed format and read error free into a personal computer using the Cauzin-developed reader.

The system's major components are:

1. Softstrip™ Data Strips

Softstrip data strips are printed graphic patterns which carry encoded information and are easily printable on almost any type of paper with almost any type of printing process.

Physical characteristics of data strips:

- typically 9 1/2" long, 5/8" wide
- up to 5,500 bytes (characters) of information per strip
- header and edge markings on each line so the Reader will self-align and adjust to any density of printed information.

2. StripWare™

StripWare is the brand name for selected programs to be published by Cauzin in Softstrip form under license from major authors and publishers. A library of several dozen programs will be available at the time of the system's introduction and it will be expanded further during 1986.

3. Softstrip™ Reader

A compact, mechanically-driven electro-optical scanner of proprietary design, the Reader connects via cable to any personal computer equipped with either cassette input or RS232 port.

A microprocessor and LSI chip contained in the Reader transfer the Softstrip ASCII-encoded information to the internal memory of the personal computer. The Reader can read a data strip in 30 seconds or less, depending on length.

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The Softstrip encoding scheme, combined with parity bits on each encoded line, provide reliability and error correction equivalent to or better than other encoding methods. Also eliminated are errors due to common pitfalls of conventional print media: black spots, dropouts and ink smears.

Softstrip Reader physical characteristics:

- internal rotating optical scanning device
- motor-driven carriage
- alternative reading configurations
  - tube rests in base, accepts single sheet of paper
  - tube is removed from base and placed on hardcopy encoded page
- cable connections to personal computer
- correction of alignment errors up to 1/8"
- electronics and semiconductor logic to translate optical data into machine-readable information
- Reader tube is 16 1/2" long x 3" deep x 2 1/2" high.

Computer Compatibility

Data contained in Softstrip form is in universal ASCII code and can be read by any personal computer.

Programs printed in Softstrip format will be specific to a given model of personal computer.

Printer Compatibility

Low density Softstrip data strips (about 900 bytes per data strip) can be printed on a dot-matrix printer provided the user has a proprietary Cauzin program offered separately (through retail outlets).

High density Softstrip data strips typically use more sophisticated printing methods such as laser printers or photographic reduction.

Advantages of the Cauzin System

- Density variable from 150 to 1,000 bytes per square inch with no adjustments necessary to the reader.
- Accessibility of the Softstrip-encoded data or text to all personal computers without reformatting.
- Simple production on virtually any quality paper with standard printing processes
- Option of printing lower-density Softstrip data strips on photocopy machines.
- Security option to prevent reproduction of Softstrip data strips on photocopy machines.

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System Applications of Softstrip Systems

Softstrip data strips will be incorporated into mass media such as magazines, books, and stand-alone programs. Additionally, they can be used in "system applications" in which each printed strip is unique, for bank statements and waybills, for example. In these cases, the Cauzin-provided program and printer will largely eliminate the human error factor usually resulting from the keying in of data while enabling the user to retrieve information already stored in a computer.

Product Distribution Strategy

The Softstrip Reader will be nationally available through computer retail outlets in January, 1986. Cauzin System has developed an alliance of publishers and corporations who will employ the data strips in magazines, books and customer communications, bringing the concept into immediate public use and creating a new medium for information distribution. In January, 1986 issues of selected magazines will initiate publication of programs and data in Softstrip format. Almost a dozen major computer magazines are now working with Cauzin to provide programs in Softstrip format.

Several book publishers -- particularly those specializing in technical and educational materials -- have agreed to include material in Softstrip format in books scheduled for publication in early 1986.

Further increasing the availability of Softstrip materials, Cauzin will publish programs under the Cauzin StripWare label. By mid-1986, several business application packages will have been developed jointly with industrial firms. Each such application will require a significant number of Readers to be supplied either by Cauzin or by the business entity utilizing the application under arrangement with Cauzin.

While the system works with all personal computers, Cauzin is initially supporting computers from Apple and IBM. Plans call for Cauzin's expansion into other personal computer product lines during 1986.

In addition to manufacturing and marketing the Softstrip system, Cauzin has established a publishing division to work with other publishers to develop new products using the Softstrip system. Cauzin will assist publishers in preparation of masters and will license its proprietary program for printing Softstrip masters to high-volume publishers and business applications users.

Reader Price: Less than $200.00

StripWare Price: Will range from $2.98 to $12.98

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OSIS Code: Newsletters

PAPER GOES HIGH TECH: CAUZIN'S SOFTSTRIP SYSTEM

INTRODUCTION

DATAQUEST'S annual office automation conference was tne site of the first public demonstration of the Cauzin Softstrip System--a new technology for storing and reading software and data distributed on paper. The Cauzin Softstrip System is a patent-pending proprietary encoding and scanning technology that enables software, data, programs, graphics, and sound to be printed on paper in a highly condensed format and to be read error free into a personal computer using the Cauzin-developed reader.

PRODUCT INFORMATION

The Cauzin Softstrip System has two elements:

- The Softstrip data strip, which is computer code printed through a unique patented encoding technology

- The Softstrip reader, which is a hand-operated optical-electronic scanning device that automatically reads the information from the data strips into any personal computer

Softstrip Data Strips

Softstrip Data Strips are specially encoded information (software and data) printed onto ordinary paper in strips typically 5/8-inch wide and 1-inch to 9-1/2-inches long. Each data strip can hold up to 5,500 bytes (approximately three type-written pages) and can be linked for lengthy software programs, financial information, or data bases. Using standard printing processes, softstrip data strips can be printed on almost any quality paper. Data strip originals can be printed either to allow or to prevent reproduction on photocopiers.

The attached sample shows data represented in text form accompanied by a medium-density Softstrip representing the same textual information.

DATAQUEST ANALYSIS

Now that business has begun to think of information in terms of its strategic value, a significant marketing opportunity exists for providers of technology who can demonstrate ways to improve a firm's ability to compete, to better serve customers, or to streamline its operations. This is particularly true when the technology product is available as an add-on to existing equipment (in this case, a PC) at a low cost.

DATAQUEST believes that the Cauzin product will provide exciting new vistas for the information industry and for users of information. For a relatively low entry cost, Softstrip data strips can be incorporated into mass media such as magazines and books. Software demonstration programs, for example, could be included as part of an advertising program in magazines. This technique would also appeal to providers of educational and training materials. Textbooks on computer programming could use Softstrips to input programs or exercises. How-to books might include Softstrips to increase understanding.

From the office systems perspective, the availability of paper as "media" has certain inherent advantages. Paper is ubiquitous in the office. It will not melt in the trunk of your car; it is easy to store, file and transport; end users can readily relate to data represented in text form; and it is not zapped by electronic surveillance.

Given the current activity in document conversion capabilities for office systems, Softstrips could be used to transfer data from one computer to another, or as an alternate means of saving and storing data. Additionally, new types of systems applications will open in which each printed strip is unique, such as for bank statements and waybills.

DATAQUEST believes that the Cauzin Softstrip will accelerate the consumer and businessman into the information age.

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<div align="right">

Linda O'Keeffe
Kathleen Lane

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The data strips are created by printing a complex matrix pattern within a set of alignment marks. The Softstrip technique uses four interleaved levels of data encoding and redundancy to assure that information cannot be read even if portions of the printed matrix are destroyed by imperfect printing, dirt, scratches, and the wear and tear of everyday use.

Programs printed in Softstrip format are specific to a given model of personal computer. Data contained in Softstrip form is in universal ASCII code and can be read by any personal computer.

Low-density Softstrip data strips (about 900 bytes per data strip) can be printed on a dot-matrix printer using a low-cost proprietary Cauzin program that will be offered separately through retail outlets. High-density Softstrip data strips typically use more sophisticated printing methods such as laser printers or photographic reduction.

The Softstrip Reader

The Softstrip reader is a simple-to-use, portable, lightweight, automatic scanning device that reads encoded Softstrip data into any personal computer. The reader is designed to rest on its own base, and data strips can be read without removing the reader from its base. To read data strips in magazines or books, the reader can be lifted from its base, placed directly on the data strip, and read without damaging the printed document. The reader plugs directly into the personal computer's standard communications interfaces through a cassette or RS-232 connector.

The reader is a patent-pending, optical-electronic product that uses a proprietary lens system to automatically scan, interpret, and input information from the data strip to the PC. The reader scans data strips using a self-aligning raster scan in the near infrared spectrum. This technique allows the Softstrip reader to automatically correct strip misalignments and makes the reader immune to most dirt, spills, and stains. The reader scans, decodes, and inputs a 5,500-byte data strip (about three typewritten pages) in approximately 30 seconds.

The Softstrip System

Cauzin is initially supporting only the Apple II, Apple Macintosh, IBM, and IBM-compatible computers. The Softstrip reader will be nationally available for $200 through computer retail outlets in January 1986. To launch this new information delivery technology, Cauzin has developed an alliance of publishers who will employ the data strips in magazines, books, and customer communications. A dozen computer magazines are now working with Cauzin to provide programs in Softstrip format. Several book publishers are working to include material in books scheduled for publication in early 1986.

Cauzin will also market data and program products using Softstrip technology and identified by a Cauzin StripWare label.

About the Softstrip™ System

The Cauzin Softstrip[tm] System is a patent-pending, breakthrough in computer and information processing.

With the system's new technology, information which used to require electronic media for dissemination can be printed right on paper and read off the paper automatically and error free. The technology is called Softstrip[tm] and the printed image containing the information is called a data strip. With it, people can input virtually any information -- for example text, numbers, graphics, and sound -- into their personal computer from paper without having to type it in.

For users of magazines, books, newsletters and journals Softstrip[tm] technology will mean more information will be useful because the time and errors of typing are eliminated. For businesses, internal and external correspondence that deals with data can now be made more productive because the information will be more easily recaptured electronically, quickly and without errors.

Each data strip contains thousands of bytes of information. They can be printed to allow or prohibit duplication using normal printing processes on any type of paper.

A low cost computer peripheral, the Cauzin Softstrip[tm] Reader, inputs the information contained on data strips directly into the computer. Using an electronic optical technology, data is read into the computer automatically, quickly, and accurately.

The Softstrip[tm] System makes print a whole new source of computer usable material. Now personal computer users will be able to obtain software from printed books, magazines, and newsletters without having to usethe keyboard. Businesses will be able to communicate computer data through the mails without excessive costs and without special production of separate magnetic materials.

To find out more about the Softstrip[tm] System from Cauzin, write to us at:

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Softstrip
COMPUTER READABLE PRINT